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MACHINE BOLTS.



Fig. 1, Square Head, Square Nut.



Fig. 2. Square Head, Hexagon Nut.

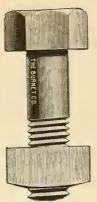


Fig. 3. Hexagon Head, Square Nut.



Fig. 4. Hexagon Head, Hexagon Nut.

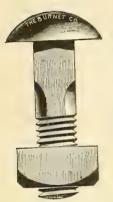


Fig. 5. Round Head, Square Neck, Square Nut.



Fig. 6. Round Head, Square Neck, Hexagon Nut.

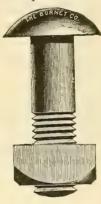


Fig. 7. Round Head, Round Neck, Square Nut.

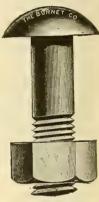


Fig. 8. Round Head, Round Neck, Hexagon Nut.



Fig. 9. Square Head, Square Neck.



Fig. 10. Joint Bolt, Oblong Nut.



Fig. 11. Deck Bolt, Square Nut. FOR PRICE LIST SEE PAGE 3.



Fig 12. Countersunk Head Square Nut.

Manufacturers' Standard List of

MACHINE BOLTS

With Square Heads and Square Nuts. Finished Points.

Adopted September 20, 1899, to take effect October 1, 1899.

Price per Hundred.

Length In ins.	$\frac{1}{4}$	1 6	<u>m</u> (66	16	$\frac{1}{2}$	16 & 5	34	7/8	1	1 1 8	$1\frac{1}{4}$
$1\frac{1}{2}$	\$1.70	\$2.00	\$2.40	\$2.80	\$3.60	\$5.20	\$7.20	\$10.50	\$15.10	\$22.50	\$30.00
2	1.78	2.12	2.56	3.00	3.86	5.58	7.70	11.20	16.00	23.70	31.50
.21	1.86	2.24	2.72	3.20	4.12	5.96	8.20	11.90	16.90	24.90	33.00
$\frac{.2\frac{1}{2}}{3}$	1.94	2.36	2.88	3.40	4.38	6.34	8.70	12.60	17.80	26.10	34.50
31	2.02	2.48	3.04	3.60	4.64	6.72	9.20	13.30	18.70	27.30	36.00
4	2.10	2.60	3.20	3.80	4.90	7.10	9.70	14.00	19.66	28.50	37.50
41/3	2.18	2.72	3.36	4.00	5.16	7.48	10.20	14.70	20.50	29.70	39.00
5	2.26	2.84	3.52	4.20	5.42	7.86	10.70	15.40	21.40	30.90	40.50
$5\frac{1}{2}$	2.34	2.96	3.68	4.40	5.68	8.24	11.20	16.10	22.30	32.10	42.00
6	2.42	3.08	3.84	4.60	5.94	8.62	11.70	16.80	23 20	33.30	43.50
61	2.50	3.20	4.00	4.80	6.20	9.00	12.20	17.50	24.10	34.50	45.00
7	2.58	3.32	4.16	5.00	6.46	9.38	12.70	18.20	25.00	35.70	46.50
r 1 2	2.66	3.44	4.32	5.20	6.72	9.76	13,20	18.90	25,90	36.90	48.00
8	2.74	3.56	4.48	5.40	6.98	10.14	13.70	19,60	26.80	38,10	49.50
9	2.90	3.80	4.80	5.80	7.50	10.90	14.70	21.00	28.60	40.50	52.50
10	3.06	4.04	5.12	6.20	8.02	11.66	15.70	22.40	30.40	42.90	55.50
11	3.22	4.28	5.44	6.60	8.54	12.42	16.70	23.80	32.20	45.30	58.50
12	3.38	4.52	5.76	7.00	9.06	13.18	17.70	25.20	34.00	47.70	61.50
13			6.08	7.40	9.58	13.94	18.70	26.60	35 80	50.10	64.50
14			6.40	7.80	10.10	14.70	19.70	28.00	37.60	52.50	67.50
15			6.72	8.20	10.62	15.46	20 70	29.40	39.40	54.90	70.50
16			7.04	8.60	11.14	16.22	21.70	30 80	41.20	57.30	73.50
17					11.66	16.98	22.70	32.20	43.00	59.70	76.50
18					12.18	17.74	23.70	33.60	44.80	62.10	79.50
19					12,70	18.50	24.70	35.00	46.60	64.50	82.50
20					13.22	19.26	25.70	36.40	48.40	66.90	85.50
21							26.70	37.80	50.20	69.30	88.50
22							27.70	39.20	52.00	71.70	91.50
23							28.70	40.60	53.80	74.10	94.50
24							29.70	42.00	55.60	76.50	97.50
25	:				,		30.70	43.40	57.40	78.90	100.50
26							31.70	44.80	59.20	81.30	103.50
27							32.70	46 20	61.00	83.70	106.50
28			. , ,				33.70	47.60	62.80	86.10	109.50
29							34.70	49.00	64.60	88.50	112.50
30							35.70	50.40	66.40	90.90	115.50
								·			

The following extras are to be understood as a part of the Machine Bolt List: Bolts with Hexagon Heads or Hexagon Nuts, 10 per cent. extra. If both Hexagon Heads and Hexaon Nuts, 20 per cent. extra. Joint Bolts with Oblong Nuts and Bolts with Tee Heads, 10 per ent. extra.

Please state on order whether Cold Punched C & T Nuts or Hot Pressed Nuts are reuired. All Countersunk Head Bolts are made at an angle of 35 degrees unless otherwise rdered.

Manufacturers' Standard List of

NET PRICES FOR EXTRA LENGTH OF THREAD AND EXTRA NUTS.

Adopted September 20, 1899, to take effect October 1, 1899.

					_				
ize of bolt - in inches	$-1 \frac{1}{4}$	16	$1\frac{\frac{3}{8}}{6}$	7-	$\frac{1}{2}$	16 & 5	$\frac{3}{4}$	1 2 1	1
Extreme length of Thread in inches	$-\frac{3}{4}$	1 6 1 5 1 6	$1\frac{1}{8}$	115 116	11/2	$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{8}{8}$	3
or each additional 4 inch of Thread							_		
			$\$0.02\frac{1}{2}$						
or one extra Square Nut, per 100 Bolt	s .25	.35						2.00	
or one extra Hexagon Nut, per 100 Bolt	s .35	.45	.55	.70	.85	1.15	1.75	2.50	3.60

AVERAGE WEIGHT PER 100 OF MACHINE BOLTS, WITH SQUARE HEADS AND NUTS.

	Dia	1/4	- <u>b</u>	3/8	. 16	1/2	196	<u>5</u> 8	3/4	7 8	1	11	$1\frac{1}{4}$	13/8	11/2
	11/3	3.4	5.9	8.75	13.	18.2	25.	33.	52.	76	111	171	235		
	$\frac{1\frac{1}{2}}{2}$	4	7.	10.	15.	20.8	28.	37.	57.	84	$121\frac{1}{2}$	185	252		
	$2\frac{1}{2}$	4.7	8.	11.4	17.	23.4	31.5	40.9	62.9	$92\frac{1}{2}$	132	199	270		/
	3	5.4	9.	12.8	19.	26.	35.	44.8	68.8	101	$142\frac{1}{2}$	213	287	350	480
٥	$3\frac{1}{2}$	6.1	10.	14.2	21.	28.6	38.5	48.7	74.7	109	153	227	303	370	500
HEAD	4	6.8	11.1	15.6	23.	31.2	42.	52.6	80.6	$117\frac{1}{2}$	$163\frac{1}{2}$	241	319	390	520
Ξ	45	7.5	12.1	16.9	25.	33.8	45.5	56.5	86 5	126	174	255	335	410	545
24	5	8.1	13.3	18.2	27.	36.4	49.	60.5	92.4	134	$184\frac{1}{2}$	269	351	430	570
UNDER	$5\frac{1}{2}$	8.7	14.5	19.6	29.	39.	52.5	64.4	98.3	142	195	283	367	450	595
Z	6	9.4	15.5	21.	31.	41.6	56.	68.3	104.2	$150\frac{1}{2}$	$\frac{205\frac{1}{2}}{210}$	297	383	470	620
	$6\frac{1}{2}$	10.	16.5	23.5	33.	44.2	59.5	72.2	110.1	158	216	311	400 416	490	645
BOLIS	7	10.6	17.5	24.	35.	46.8	63.	76.2	116.	167	2261	325 339	432	510 530	670 695
<u></u>	$\frac{7\frac{1}{2}}{2}$	11.3	18.5	25.5	37.5	49.4	66.5	80.1 84.	$121.9 \\ 127.8$	175 1834	$237 \\ 247\frac{1}{2}$	353	$\frac{452}{449}$	550	725
	8	11.9	19.5	27. 28.5	$\frac{40.}{42.2}$	52. 54.6	70. 73.5	87.9	133 7	192	258	367	466	570	750
OF	$\frac{8\frac{1}{2}}{9}$		•	20.0 30.	44.4	57.3	77.	91.9	139.6	200	2681	381	483	590	775
(f)	$\frac{9}{9\frac{1}{2}}$		• •	31.5	46.6	60.	80.5	95.8	145.5	2081	279	395	500	610	800
TE	$\frac{32}{10}$			33.	48.8	62.6	84.	99.7	151.4	$216\frac{1}{3}$	290	409	517	630	825
ĎN	11	• •	: :	$35\frac{1}{3}$	53.2	67.8	91.	107.6	163.2	233	311	437	550	670	875
LENGTES	12	• •		37.	57.6	73.	98.	115.5	175.	250	332	465	583	700	925
	13					78.2	105.	123.4	186.8	266	353	493	616	751	975
	14					83.4	112.	131.2	198.6	283	374	521	650	793	1025
	15					88.6	119.	139.	210 4	299	395	549	683	835	1075
	16					93.8	126.	146.9	222.2	316	416	577	717	877	1125
	17					99.	133.	154.7	234.	332	437	605	750	919	1175
	18					104.2	140.	162.6	245.8	349	458	633	783	961	1225
	19					109.4	147.	170.4	257.6	365	479	661	817	1003	1275
	20					114.6	154.	178.2	269.4	382	500	689	850	1045	1325

DIMENSIONS OF BOLT HEADS

As adopted by the

NATIONAL ASSOCIATION OF BOLT MANUFACTURERS.

Diameter of Bolt	Square and Hexagon Heads	Button Heads and Carriage Bolt Heads	Tee Heads	Square Countersunk and Round Countersunk	Forged Set Screws
31 23.0	Width and Thickness	Width and Thickness	Length, Width and Height	Width and Height	Width and Height
1/4	$\frac{3}{8} X_{16}^{3}$	$\frac{1}{2}$ X $\frac{1}{8}$	$\frac{1}{2}$ X $\frac{1}{4}$ X $\frac{3}{16}$	½ X _{1.6}	16X 1
76	$\frac{1}{3}\frac{5}{2}X \frac{1}{4}$	5 X 5 2	$\frac{5}{8}X_{16}^{-5}X_{4}$	$\frac{19}{32}$ X $\frac{3}{16}$	$\frac{3}{8} \times \frac{5}{16}$
3/8	$\frac{9}{16}X_{16}$	² / ₄ X ₁ ³ / ₆	$\frac{3}{4}$ X $\frac{3}{8}$ X $\frac{5}{16}$	$\frac{11}{16}X_{32}^{7}$	$\frac{7}{16}$ X $\frac{3}{8}$
56 38 76 20	$\frac{21}{32}X \frac{3}{8}$	$\frac{7}{8}X_{\frac{3}{2}2}$	$\frac{7}{8}X_{16}^{7}X_{8}^{3}$	$\frac{25}{32}$ X $\frac{1}{4}$	$\frac{17}{32}$ $x_1^7_6$
$\frac{1}{2}$	$\frac{3}{4} \times \frac{7}{16}$	$1 \times \frac{1}{4}$	$1 \times \frac{1}{2} \times \frac{7}{16}$	$\frac{7}{8} \times \frac{1}{4}$	$\frac{5}{8} \times \frac{1}{2}$
<u>9</u> 16	$\frac{27}{32}$ X $\frac{1}{2}$	$1\frac{1}{8}x\frac{9}{32}$	$1\frac{1}{3}x\frac{9}{16}x\frac{1}{2}$	31x-9 32x-32	11 x 3
5)의 314 기상	$\frac{15}{16}$ X $\frac{17}{32}$	$1\frac{1}{4}x_{16}^{5}$	$1\frac{1}{4}$ X $\frac{5}{8}$ X $\frac{17}{32}$	$1\frac{1}{16}x\frac{5}{16}$	3 X 5
34	1 ½ x 5/8	$1\frac{1}{2}x \frac{3}{8}$	$1\frac{1}{2} \times \frac{3}{4} \times \frac{5}{8}$	$1\frac{1}{4}x\frac{11}{32}$	15 x 3
78	$1_{16}^{5} \times \frac{3}{4}$	$1\frac{3}{4}x_{16}^{7}$	$1\frac{3}{4}$ x $\frac{7}{8}$ x $\frac{3}{4}$	$1_{16}^{7} \times \frac{13}{32}$	1 x 7
1	$1 \frac{1}{2} \times \frac{7}{8}$	$2 \times \frac{1}{2}$	$2 \times 1 \times \frac{7}{8}$	$1\frac{5}{8}x_{16}^{7}$	$1\frac{1}{4}\times 1$
1 1 8	$1\frac{1}{1}\frac{1}{6}x$ 1	$2\frac{1}{4}x_{16}^{-9}$	Ü		*
$1\frac{1}{4}$	$1\frac{7}{8} \times 1\frac{1}{8}$	$2\frac{1}{2} \times \frac{5}{8}$			
1 3	$2_{16}^{1} \times 1_{\frac{1}{4}}^{1}$				
$1\frac{1}{2}$	$2\frac{1}{4} \times 1\frac{3}{8}$				

The heads of Lag Screws, Skein Screw; and Tap Bolts will be made of same dimensions as given above for Square Head Bolts.



Manufacturers' Standard List of

BLANK BOLTS

With Either Spuare or Round Heads, Finished Points,

PRICE PER 100.

	Dia	ımeter	:.		1/4	. <u>5</u>	38	, 16	1/2	16 & 5 16 & 5	34	7/8	1
	$\begin{array}{c} 1\frac{1}{2} \\ 2 \\ 2\frac{1}{2} \\ 3 \\ 3\frac{1}{2} \\ 4 \\ 4\frac{1}{2} \\ 5 \end{array}$	_	-	-	\$1.20	\$1.40	\$1.60	\$2.00	\$2.50	\$4.00	\$5.60	\$7.80	\$10.40
	2	-	-	-	1.30	1.52	1.74	2.18	2,74	4.36	6.10	8.50	11.30
	$2\frac{1}{2}$	-		-	1.40	1.64	1.88	2.36	2.98	4.72	6.60	9.20	12.20
	3	-	-	-	1.50	1.76	2.02	2.54	3.22	5.08	7.10	9.90	13.10
	$3\frac{1}{2}$	-	-	-	1.60	1.88	2.16	2.72	3.46	5.44	7.60	10.60	14.00
	4	-	~	-	1.70	2.00	2.30	2.90	3.70	5.80	8.10	11.30	14.90
	41/2	-	-	-	1.80	2.12	2.44	3.08	3.94	6.16	8.60	12.00	15.80
	5	-	-	-	1.90	2.24	2.58	3.26	4.18	6.52	9.10	12.70	16.70
	$5\frac{1}{2}$	-	-	-	2.00	2.36	2.72	3.44	4.42	6.88	9.60	13.40	17.60
88	6	-	-	-	2.10	2.48	2.86	3.62	4.66	7.24	10.10	14.10	18.50
H	$6\frac{1}{5}$	_	-	-	2.20	2.60	3.00	3.80	4,90	7.60	10.60	14 80	19.40
INCHES.	$rac{6rac{1}{2}}{7}$	_	-	-	2.30	2 72	3.14	3.98	5.14	7.96	11.10	15.50	20.30
	$7\frac{1}{5}$	-	-	-	2.40	2.84	3.28	4.16	5.38	8.32	11.60	16.20	21 20
N	8 9	_	_	_	2.50	2.96	3.42	4.34	5.62	8.68	12.10	16.90	22 10
耳	9	_	_		2.70	3,20	3.70	4.70	6 10	9.40	13.10	18,30	23.90
LENGTH	10	_	_	_	2.90	3 44	3.98	5.06	6.58	10.12	14 10	19.70	25.70
Ž,	11		_		3 10	3 68	4.26	5.42	7.06	10.84	15.10	21.10	27.50
=	12	_		-	3.30	3.92	4 54	5.78	7.54	11.56	16.10	22.50	29.30
	13				0.00	0.02	4 82	6.14	8.02	12.28	17.10	23.90	31.10
	14	_	-	-	•	• •	5.10	6.50	8.50	13.00	18.10	25,30	32.90
	15	-	-	-		• •	5.38	6.86	8.98	13.72	19.10	26.70	34.70
		-	•	-	•		5.66	7 22	9.46	14.44	20.10	28.10	36.50
	16	-	-	-			0.00	1 22					38.30
	17	-	-	-					9.94	15.16	21.10	29.50	
	18	-	-	-					10.42	15 88	22.10	30.90	40.10
	19	-	-	-	•	•			10.90	16 60	23.10	32.30	41.90
	20	-	-	-					11.38	17.32	24.10	33.70	43.70

The following extras are to be understood as a part of this list: Blank Bolts with Hexagon Heads, Tee Heads, Askew Heads, and Eccentric Heads, 10 per cent. extra.

WEICHT OF SQUARE HEAD BLANK BOLTS.

Average Weight per Hundred.										
Diam.	38	176	$\frac{1}{2}$	5	34	$\frac{7}{8}$	1	11/8	$1\frac{1}{4}$	$1\frac{1}{2}$
34	5.6	8.7	11.2							
1	6.4	9.7	12.6	23.						
11/4	7.2	10.7	14.	24.9	39.5					
$1\frac{3}{5}$	8.	11.7	15 4	27.1	42.5	63.				
$1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$	8.8	12.7	16.8	29.	45.5	67.	90			
2	9.6	13.7	18.2	31.	48.5	71.	95			
$2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$	10.4	14.7	19.6	33.	51.5	75.2	100	141		
$2^{\frac{1}{2}}$	11.2	15.7	21.	35.	54.5	79.4	105	149		
$2\frac{3}{4}$	12.	16.7	22.4	37.	57.5	83.7	110	157		
3	12.8	17.7	23.8	39.	60.5	88.	115	165	215	370
$3\frac{1}{2}$	14.4	19.7	26.6	43.5	66.5	96.3	125	180	232	392
4	16.	21.7	29.4	48.	72.7	104.5	136	195	249	414
$\frac{4\frac{1}{2}}{5}$	17.5	23.7	31.2	52.5	78.9	112.8	147	210	266	437
5 .	19.	25.7	35.	56.5	85.1	121.	158	225	283	461
$5\frac{1}{2}$	20.5	27.7	37.8	60.5	91.3	129.3	1 6 9	240	300	485
6	22.	29.7	40.6	64.6	97.5	137.5	180	265	317	510
6 7	25.	33.7	46.	72.8	109.	154.	202	290	351	560
8	28.	37.7	51.5	81.	121.	171.	223	315	386	610
9		41.7	56.7	89.	133.	188.	245	340	420	660
10		45.7	62.	97.	145.	205.	267	365	453	710
11			67.5	105.	157.	222.	288	390	488	760
12			73.	114.	170.	2 39.	310	415	523	810

Manufacturers' Standard List of

BOLT ENDS.

Fitted with Square Nuts.



		Fig	, IT,						
Size of iron,	-	5-16	38	7-16	$\frac{1}{2}$	<u>5</u>	34	耆	1
Length in inches,	-	6	7	7	8	9	$\bar{1}0$	11	12
Approximate weight of 100,	-	$15\frac{1}{2}$	$24\frac{1}{4}$	$33\frac{1}{2}$	50	85	143	211	308
List price per pound,	-	\$0.20	.18	.16	.14	.12	.10	.10	.10
Size of iron,	-	$1\frac{1}{8}$	11	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2
Length in inches,	-	13	14	15	16	17	18	19	20
Approximate weight of 100,	-	423	568	732	937	1162	1429	1731	2075
List price per pound,	-	\$0.10	.11	.11	.11	.12	.12	.12	.12
			-				_		

Upset or enlarged ends at special prices. Bolt Ends with Hexagon Nuts, 10 per cent extra. Bolt Ends cut with right or left hand threads. Bolt Ends ordered shorter than above standard lengths, will be charged at the price per hundred of machine bolts of same length, subject to same discount. Wood Screw Ends cut to order at special prices.

PLOW BOLTS.



Fig. 15.



Fig. 16.



Fig 17.



Fig. 18.

Price per Hundred-Finished Points, Right or Left Hand Thread.

	o por manaroa			==::	Hama IIII ou	us
Length over a	$\frac{1}{4} \& \frac{5}{16}$	38	$\frac{7}{16}$	$\frac{1}{2}$	⁹ ₁₆ & ⁵ ⁄ ₈	$\frac{3}{4}$
14 inches.	1.70	2.00	2.60	3.00	4.50	7.00
$\frac{1\frac{1}{2}}{1\frac{3}{4}}$ "	1.80	2.10	2.75	3.00	4.50	7.00
13 "	1.90	2.20	2.90	3.15	4.75	7.50
2 "	2.00	2.30	3.05	3.30	5.00	8.00
$2\frac{1}{4}$ "	2.10	2.40	3.20	3.45	5.25	8.50
21 "	2.20	2.50	3 35	3.60	5.25	8.50
$2\frac{1}{4}$ " $2\frac{1}{2}$ " $2\frac{3}{4}$ " $2\frac{3}{4}$ "	2.30	2.60	3.50	3.75	5.50	9.00
3 "	2.40	2.70	3.65	3.90	5.50	9.00
$3\frac{1}{4}$ "	2.50	2.80	3.80	4.05	5.75	9.50
$3\frac{1}{2}$ "	2.60	290	3.95	4.20	5.75	9.50
$\frac{3\frac{1}{2}}{3\frac{3}{4}}$ " 4	2.70	3.00	4.10	4.35	6.00	10.00
	2.80	3.10	4.25	4.50	6.00	10.00
$\frac{4\frac{1}{2}}{5}$ "	3.00	3.35	4.55	4 80	6.30	10.50
	3.25	3.60	4.85	5.15	6 60	11.00
$5\frac{1}{2}$ "	и •		5.20	5.50	7 00	11.50
6 "			5.55	5.85	7.50	12.00
7 "				6.60	8.50	13.00
8 "				7.30	9.50	14.00

Unless otherwise specified, Fig. 16 Bolt will be furnished.

BRIDGE AND ROOF BOLTS.

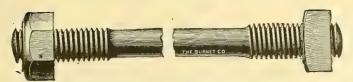


Fig. 19.

Price per Pound, with Both Ends Upset and Fitted with Hexagon Nuts.

Length.	$\frac{3}{4}$ to $1\frac{1}{8}$ Diam.	$1\frac{1}{4}$ to $1\frac{1}{2}$ Diam.	15 to 2 Diam.	$2\frac{1}{8}$ to 3 Diam.
4 to 8 feet	1.12.0 cts.	.12.4 cts.	.13.2 cts.	.14.4 cts.
8 to 12 "	.11.0 "	.11.4 "	.12.2 "	.13.2 "
12 to 16 "	.10.0 "	.10.4 "	.11.2 ''	.12.4 "
16 to 20 "	.09.2 ''	.09.6 "	.10.4 "	.11.6 "

Dimensions of Upset Ends on Round Iron.

		HHICHGIGH	3 01 - P301	-1100 011			
Diam.	Diam,	Length	Threads	Diam. of Bar.	Diam.	Length of Upset.	Threads
or Bar.	or upset.	of Upset.	per inch.	or bar.	or opset.	or opset.	per Incu.
3	1	$2\frac{3}{4}$	8	$1\frac{3}{4}$	$2\frac{1}{8}$	$5\frac{1}{2}$	$4\frac{1}{2}$
7/2	1분	3~	7	$1\frac{7}{8}$	$2\frac{1}{4}$	$5\frac{3}{4}$	$4\frac{1}{2}$
1°	1 	$3\frac{1}{4}$	7	2°	$2\frac{3}{8}$	6	4
11	13	3 1	6	$2\frac{1}{8}$	$2\frac{1}{2}$	$6\frac{1}{2}$	4
1 1 1	1ខ្ញុំ	4	6	$2\frac{1}{4}$	$2rac{5}{8}$	$6\frac{3}{4}$	4
$1\frac{3}{8}$	$1\frac{3}{4}$	$4\frac{1}{2}$	5	$2\frac{3}{3}$	$2\frac{3}{4}$	7	4
1 l	13	5 ~	5	$2\frac{1}{2}$	$2rac{ar{7}}{3}$	$7\frac{1}{3}$	$3\frac{1}{2}$
$\frac{-2}{15}$	$2\degree$	51	5 1	$2\frac{2}{5}$	3	8	$3\frac{7}{2}$
-8		**	4				

We are prepared to make Upset rods up to 3 in diameter from best refined iron or steel, possessing all the standard requisites as to tensile strength, elastic limit and elongation.

BRIDGE AND ROOF BOLTS.

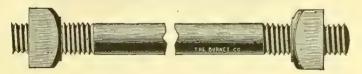
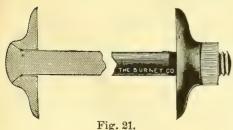


Fig. 20.

Price per Pound, with Square Head on One End and Square Nut on the Other, or Square Nut on Each End, as Preferred.

Length.	5 Diam.	$\frac{3}{4}$ to $1\frac{1}{8}$ Diam.	$1\frac{1}{4}$ to $1\frac{1}{2}$ Diam.	15 to 2 Diam.
20 inches to 4 fe	m et $ m .09.2$.08.8	.09.2	.10.0
4 feet to 8 '	.08.8	.08.4	.08.8	.09.4
8 " to 12 '	.08.4	.08.0	.08.4	.08.8
12 " to 20 '	.08.0	.07.6	.08.0	.08.4



STRUCTURAL BOLTS.

We make structural bolts, with the necessary wrought or east washers; also bolts with countersunk heads to fit into east header washers, as shown in cut. Prices quoted on receipt of specifications.



Fig. 22

Countersunk Head.

The Counteranny Heads will always be set

BELT OR

ELEVATOR BOLTS.

The Countersunk Heads will always be sent unless specially ordered otherwise.



Fig. 23
Button Head.

Diameter.

Length	Price per 100.
34	\$3.00
1	3.25
$1\frac{1}{4}$ or $1\frac{1}{2}$	3.50
1	3.50
$1\frac{1}{4}$ or $1\frac{1}{2}$	3.75
$1\frac{3}{4}$ or 2	4.00
11/4	4.20
$1\frac{1}{2}$	4.50
$1\frac{\overline{3}}{4}$	4.80
2	5.10

STUD BOLTS.

Rough Iron, Without Nuts.



Fig. 24.

Price Per 100.

	Diam.	3/00	7 1 6	1/2	16	5 8	34	7/8	1	11/8	11/4	13/8
	No. Threads	16	14	13	12	11	10	9	8	7	7	6
	11/4	\$3.35	\$4.05	\$4.4 0	\$5.10							
ALL.	$1\frac{1}{2}$ $1\frac{3}{4}$	3.50				\$6.10						
	$\frac{14}{2}$	$\begin{vmatrix} 3.65 \\ 3.80 \end{vmatrix}$					\$8.80					
OVER		3.95	4.65	5.20	5.90	6.70	9.10					
	21 21 23 23	4.10						\$12.00				
LENGTH	$\frac{z_4}{3}$	4.25					9.70		\$17.00	\$21.00		
LEN	3 1		5.25	1			10.30	13.50	17.75	22.00		
	31 31 32 34		5.40		į.		10.60				\$27.00	
	$\frac{32}{4}$			6.40			$10.90 \\ 11.20$					\$33.00
	$4\frac{1}{2}$				7.50		11.65					
	5				7.70		12.10	16.50	22.00	28.00		
	$\frac{5\frac{1}{2}}{6}$						12.55 13.00			1		37.50

STUD BOLTS.

Rough Iron, with Chamfered and Trimmed Hexagon Nuts.

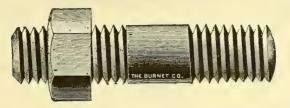


Fig. 25.

Price per 100.

	Diameter	3 S	16	$\frac{1}{2}$	76	5 K	<u>\$</u>	7/8	1
N	lo. Thread	ls. 16	14	13	12	11	10	9	8
	$\frac{1\frac{1}{2}}{1\frac{3}{4}}$	\$4.00	\$5.10	\$5.50					
	$1\frac{3}{4}$	4.10	5.25	5.65					
	2	4.20	5.40	5.80	\$8.50	\$8.50	\$12.40		
	$2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$	4.30	5.55	5.95	8.75	8.75	12.70		
	$2\frac{1}{2}$	4.40	5.70	6.10	9.00	9.00	13.00	\$18.00	
ALL	$2\frac{3}{4}$	4.50	5.85	6.25	9.25	9.25	13.30	18.50	
	3	4.60	6.00	6.40	9.50	9.50	13.60	19.00	\$27.80
OVER	$3\frac{1}{4}$	4.70	6.15	6.55	9.75	9.75	13.90	19.50	28,40
00	$3\frac{1}{2}$ $3\frac{3}{4}$	4.80	6.30	6.70	10.00	10 00	14.20	20.00	29.00
囯	$3\frac{3}{4}$	4.90	6.45	6.85	10.25	10.25	14.50	20 50	29.60
LENGTE	4	5.00	6 60	7.00	10.50	10 50	14.80	21.00	30 20
EN	$4\frac{1}{2}$	$5\ 25$	6.90	7.30	11.00	11.00	15.40	22.00	31.40
-	5			7.60	11.50	11.50	16.00	23.00	32.60
	$5\frac{1}{2}$			8.00	12.00	12.00	16.60	24 00	33.8 0
	6			8.45	12.50	12.50	17.20	25.00	35.00
	7				13.60	13 60	18.60	27.00	37.50
	8				14.80	14.80	20.10	29.10	40.10

Milled Studs, 15 per cent. extra. In ordering give length of thread wanted on each end and length of body.

WEIGHT OF COMMON CARRIAGE BOLTS.

Average Weight per Hundred.

	Dia.	$\frac{1}{4}$	5 1 6	3 8	1 ⁷ 6	1/2	<u>5</u>		Dia	$\frac{1}{4}$	1 6	3/8	1 6	1	<u>5</u>
LENGTH, INCHES.	1 1 1 1 2 2 2 2 2 3 3 4 4 5 5	2.8 3.1 3.4 3.7 4.0 4.4 4.7 5.0 5.3 5.9 6.6 7.2 7.8 8.4	4.8 5.2 5.7 6.1 6.6 7.0 7.5 7.9 8.4 9.3 10.2 11.1 12.0 12.9	6.9 7.6 8.3 9.0 9.7 10.4 11.1 11.8 12.5 13.9 15.3 16.7 18.0 19.4	9.4 10.4 11.4 12.4 13.3 14.3 15.3 16.3 17.3 19.3 21.3 23.3 25.3	14.5 15.9 17.3 18.6 20.0 21.4 22.8 24.2 25.5 28.3 31.0 33.8 36.5 39.3	28.0 30.0 32.0 34.0 36.0 38.0 40.0 42.0 44.0 52.0 56.0 60.0 64.0	LENGTH, INCHES.	$\begin{array}{c} 6 \\ 6\frac{1}{2} \\ 7 \\ 7\frac{1}{2} \\ 8 \\ 8\frac{1}{2} \\ 9 \\ 9\frac{1}{2} \\ 10 \\ 10\frac{1}{2} \\ 11 \\ 11\frac{1}{2} \\ 12 \\ \end{array}$	9.0 9.7 10.3 10.9 11.6	13.8 14.7 15.6 16.5 17.4 18.4 19.8 20.2 21.0	20.8 21.2 23.6 25.0 26.4 27.8 29.2 30.6 32.0 33.4 34.8 36.2 37.5	29.3 31.2 33.2 35.2 37.2 39.2 41.2 43.1 45.1 47.1 49.1 51.0 53.0	42.0 44.8 47.5 50.3 53.0 55.8 58.5 61.3 64.0 66.8 72.3 75 0	68.0 72.0 76.0 80.0 84.0 88.0 92.0 96.0 100.0 104.0 118.0 116 0

COMMON CARRIAGE BOLTS.

Fi	34	~	6.
		~	٠.

			Price pe				
Diameter	$\frac{1}{4}$	1 ⁵ 6	38	1 ⁷ 6	$\frac{1}{2}$	1 6 & 3	34
$\frac{1\frac{1}{2}}{1\frac{2}{4}}$	\$1.00	\$1.20					
$1\frac{3}{4}$	1.04	1.25					
2	108	1.30	\$1.50	\$2.20			
$2\frac{1}{4}$	1.12	1.35	1.57	2.28			
$2\frac{1}{3}$	1.16	1.40	1.64	2.36			
2 1 2 <u>3</u> 2 <u>4</u>	1.20	1.45	1.71	2.44			
3	1.24	1.50	1.78	2.52	\$3.00	\$5.00	\$7.20
314 312 334	1.28	1.55	1.85	2.6 0	3-10	5.15	7.40
$3\frac{1}{2}$	1.32	1.60	1.92	2.68	3.20	5.30	7.60
$3\frac{3}{4}$	1.36	1.65	1.99	2.76	3.30	5.45	7.80
4	1.40	1.70	2.06	2.84	3.40	5.60	8.00
$4\frac{1}{4}$	1.44	1.75	2.13	2.92	3.50	5.75	8.20
$4\frac{1}{2}$	1.48	1.80	2.20	3.00	3.60	5. 90	8.40
# 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1.52	1.85	2.27	3.08	3.70	6.05	8.60
E 5	1.56	1.90	2.34	3.16	3.80	6.20	8.80
$\frac{5}{2}$ $5\frac{1}{2}$	1.64	2.00	2.48	3.32	4.00	6.50	9.20
_ b	1.72	2.10	2.62	3.48	4.20	6.80	9.60
$\frac{1}{6}$	1.80	2.20	2.76	3.64	4.40	7.10	10.00
7 12 8 H15N37	1.88	2.30	2.90	3.80	4.60	7.40	10.40
$\frac{9}{2}$ $\frac{71}{2}$	1.96	2.40	3.04	3.96	4.80	7.70	10.80
<u> </u>	2.04	2.50	3.18	4.12	5.00	8.00	11.20
$8\frac{1}{2}$	2.12	2.60	3.32	4.28	5.20	8.30	11.60
9	2.20	2.70	3.46	4.44	5.4 0	8.60	12.00
91/2	2.28	2.80	3.60	4.60	5. 60	8.90	12.40
10	2.36	2.90	3.74	4.76	5.80	9.20	12.80
11	2.52	3.10	4.02	5.08	6.20	9.80	13.60
12	2.68	3.30	4.30	5.40	6.60	10.40	14.40
13	2.84	3.50	4.58	5.72	7.00	11.00	15.20
14	3.00	3.70	4.86	6.04	7.40	11.60	16.00
15	3. +6	3.90	5.14	6.36	7-80	12.20	16. 80
16	3.32	4.10	5.42	6.68	8.20	12.80	17.60
17	3.48	4.30	5.70	7.00	8.60	13.40	18.40
18	3.64	4.50	5.98	7.32	9.00	14.00	19.20
19	3.80	4.70	6.26	7.64	9.40	14.60	20.00
20	3.96	4.90	6.54	7.96	9.80	15.20	20.80

COMMON TIRE BOLTS.



_	-5.		
P	rice	per	100.

					lice bei	100					
	Dla.	$\frac{3}{16}$	1/4	5 16	98		Dia.	3 16	1	16	20
	1	\$0.60	\$0.80				$3\frac{1}{4}$	\$0.95	\$1.15	\$1.52	\$2.70
χς Ε-1	$1\frac{1}{4}$.60	.80			26 26 26	$3\frac{1}{2}$	1.00	1.20	1.59	2.80
INCHES.	$1\frac{1}{2}$ $1\frac{3}{4}$.60	.80	\$1.10		INCHES.	$3\frac{3}{4}$	1.05	1.25	1.66	2.90
Ž	$1\frac{3}{4}$.65	.85	1.10		Ň	4	1.10	1.30	1.73	3.00
	2	.70	.90	1.17	\$2.20	_5	$\frac{11}{2}$		1.40	1.87	3 20
THE	$2\frac{1}{4}$.75	.95	1.24	2.30	H	5		1.50	2.01	3 40
LENGTH,	$2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$.80	1.00	1.31	2,40	семотн,	$5\frac{1}{2}$			2.15	3 60
LE	$2\frac{3}{4}$.85	1.05	1.38	2.50	L	6			2.29	3.80
	3	.90	1.10	1.45	2.60						

Fig. 28

STOVE BOLTS.



Fig. 29

FL	AT HEA	D. Pr	ice Per	Hundr	ed.	ROUND HEAD. Price Per Hundred.					
Length	1 5 & 1 6	7 3 2	$\frac{1}{4}$	16	38	Length	1 5 & 3 & 16	3 2	1/4	5 1 6	8
38	\$0.75					ය)යා-අවගත්තාව අ-ල	\$0.85	\$0.90			
$\frac{1}{2}$.75	\$0.80	\$0.85			2	.85	.90	\$0.95		
\$24-0 00:0 48-4 00	.75	.80	.85		* o o =	\$20,7	.85	.90	.95		* .
34	.75	.80	.85	\$1.20	\$2.25	4	.85	.90	.95	\$1.35	\$2.50
- 7 8	.80	.85	.90	1.30	2.30	्र हैं	.90	.95	1.00	1.40	2.55
1	.80	.85	.90	1.30	2.35	17	.90	.95	1.00	1.45	2.60
16	.85	.90	.95	1.40	2.45	18	.95	1.00	1.05	1.50	2.65
14	.85	.90	.95	1.40	$2.45 \\ 2.55$	13	$\frac{.95}{1.00}$	$\frac{1.00}{1.05}$	1.05	$\frac{1.55}{1.60}$	2.70
18	.90	.95	$\frac{1.00}{1.00}$	$\frac{1.50}{1.50}$	2.55	1100-4000-4000-4000-4000-4000-4000-4000	1.00	1.05	1.10 1.10	$\frac{1.60}{1.65}$	2.75 2.80
15	.90	.95	1.05	$\frac{1.50}{1.55}$	2.65	13	1.05	1.10	1.15	1.70	2.85
14	.95	1.00	1.10	1.60	2.75	9	1.10	1.15	1.20	1.75	2.90
2	1.00	1.05	1.15	1.65	2.85	91	1.15	1.20	1.25	1.80	3.00
24	1 05	$\frac{1.10}{1.15}$	1.13 1.20	1.70	2.95	24 21	1.20	1.25	1.30	1.85	3.10
25	1.10 1.15	$\frac{1.15}{1.20}$	1.25	1.75	3.05	23	1.25	1.30	1.35	1.90	3.20
24	1.13	$\frac{1.20}{1.25}$	1.30	1.80	3.15	34	1.30	1.35	1.40	1.95	3.30
9 1	1.25	1.30	1.35	1.85	3.25	3 <u>1</u>	1.35	1.40	1.45	2.00	3.40
91	1.30	1.35	1.40	1.90	3.35	31	1.40	1.45	1.50	2.05	3.50
93	1.35	1.00	1.45	1.95	3.45	92 02 02 92 93 93 93 93 93 93 93 93 93 93 93 93 93	1.45	1.10	1.55	2.10	3.60
14-4000-4000-4000-4000-4000-4000-4000-4	1.40		1.50	2.00	3.55	4	1.50		1,60	2.15	3.70
47	1.45		1.55	2.05	3.65	41	1.55		1.65	2.20	3.80
11	1.50		1.60	2.10	3.75	41	1.60		1.70	2.25	3.90
43	1.55		1.65	2.15	3.85	4 4 4 4 4 4 5	1.65		1.75	2.30	4.00
5	1.60		1.70	2.20	3.95	5	1.70		1.80	2.35	4.10
5 1	1.65		1.75	2.25	4.05	$5\frac{1}{4}$	1.75		1.85	2.40	4.20
51	1.70		1.80	2.30	4.15	$5\frac{1}{2}$	1.80		1.90	2.45	4.30
$ 5\frac{1}{4} $ $ 5\frac{1}{2} $ $ 5\frac{3}{4} $ $ 6 $	1.75		1.85	2.35	4.25	5 \frac{1}{4} 5 \frac{1}{2} 5 \frac{1}{4}	1.85		1.95	2.50	4.40
6	1.80		1.90	2.40	4.35	6	1.90		2.00	2.55	4.50

Nickel Plated Stove Bolts, add One Dollar to above List Prices. DISCOUNTS.

FLAT HEAD, Nickel Plated ROUND HEAD, Nickel Plated FLAT HEAD ROUND HEAD per cent. per cent.

STOVE BOLT NUTS-TAPPED; COLD PRESSED.

Diameter of Bolt.	Threads.	Per 100.	Diameter of Bolt.	Threads.	Per 100.
5 inch	24	\$0.18	inch	18	\$0.28
3 "	24	.20	5 66 16	18	.50
75 66	20	.22	3 66	18	.64



Fig. 30



13 inch Fig. 31



1 inch Fig. 32



5 inch Fig. 33



3 inch Fig. 34

TIRE BOLT NUTS.

Diameter of	f Bol	t—Ir	nch	18	1 ³ 6	1/4	<i>b</i>	38
Threads				.24	.24	.20	18	.18
Per 100 .				\$0,21	.22	.28	42	.58

STAY BOLTS.



MADE FROM SOFT STEEL.

PRICE PER 100.

Fig. 35.

Length.	$\frac{3}{4}$	13 & 78	15 & 1
4	\$16.45	\$23.80	\$34 00
	17.20	24.80	35.30
$\frac{4\frac{1}{2}}{5}$	17.95	25.80	36.60
$5\frac{1}{2}$	18.7 0	26.80	37 .90
$rac{5rac{1}{2}}{6}$	19.45	27.80	39.20
$6\frac{1}{2}$	20.20	28.80	40.50
$rac{6rac{1}{2}}{7}$	20.95	29.80	41.80
$7\frac{1}{3}$	21.70	30.80	43.10
$7\frac{1}{2}$ 8	22.50	31.80	44.40
9	24.00	3 3.80	47 .00
10	25.50	35.80	49.60
11	27.00	37 .80	52.20
12	28.50	39.80	54.80
Longer than 12 inches, per lb.	.18	.16	.15

Threads on Stay-Bolts are cut 12 threads to the inch, unless otherwise ordered.

BOILER PATCH BOLTS.



Fig. 36.



Fig. 37.



Fig. 38.

PRICE PER 100.

Diameter, inches,	$-\frac{1}{2}$	<u>5</u>	34	7 8	1	$1\frac{1}{8}$	11/4
Milled and threaded,	- \$3.00	4 00	5.50	$7.\overline{50}$	10.00	13.00	16.00
Blank forgings, -	- \$2.00	2.75	3.75	5.00	6.75	9.00	12.00

The length of Patch Bolts is understood to be from the greatest diameter of countersunk head to the point. Patch Bolts will be cut with 12 threads to the inch, unless otherwise ordered. If ordered with special thread, in small quantities, a special price will be charged.

The angle of countersunk head in all Boiler Patch Bolts will be 45 degrees.

COACH, LAC, SKEIN AND FETTER DRIVE SCREWS.



Fig. 39.
Square Head,
Gimlet Pointed
Coach Screw.



Fig. 40.
Square Head,
Lag Screw.



Fig. 41. Skein Screw.



Fig. 42

Fetter
Drive Screw.

Manufacturers' Standard List of

COACH AND LAC SCREWS WITH SQUARE HEADS.

Adopted September 20, 1899, to take effect October 1, 1899.

PRICE PER HUNDRED.

Dia	meter.	5 16	<u>3</u>	7	$\frac{1}{2}$	9 & 5	$\frac{3}{4}$	7/8	-
	$1\frac{1}{2}$	\$2.25	\$2.70	\$3.15	\$3.75				
	2	245	2.96	3.47	4.11	\$ 5 00			
	$2\frac{1}{2}$	2.65	3.22	3.79	4.47	5 50	\$7.90		
	3	2.85	3.48	4.11	4.83	6.00	8.60	\$12 50	
	$3\frac{1}{2}$	3 05	3.74	4.43	5.19	6.50	9.30	13.50	\$18.20
80	4	3 25	4.00	4.75	5.55	7.00	10.00	14.50	19.50
INCHES.	$4\frac{1}{2}$	3 45	4.26	5.07	5.91	7.50	10.70	15.50	20.80
INC	5^{-}	3.65	4.52	5.39	6.27	8.00	11.40	16.50	22.10
5	$5\frac{1}{2}$	3.85	4.78	5.71	6.63	8.50	12.10	17.50	23.40
IN	6	4.05	5.04	6.03	6.99	9.00	12.80	18.50	24.70
LENGTH	$6\frac{1}{2}$			6.35	7.35	9 50	13.50	19.50	26.0∪
NG	7			6.67	7.71	10.00	14.20	20.50	27.36
E	71			u.99	8.07	10.50	14,90	21.50	28.60
	8			7.31	8.43	11.00	15.60	22.50	29.90
	9			7.95	9.15	12.00	17.00	24.50	32.50
	10				9.87	13.00	18.40	26.50	35.10
	11				10.59	14.00	19.80	28.50	37.76
	12				11.31	15.00	21.20	30.50	40.30

The following extras are to be understood as a part of the Coach and Lag Serew List:

Hexagon Heads, 10 per cent. extra.

Skein Screws are sold at the same price as Lag Screws.

Fetter Drive Screws sold by same Lists as Lag Screws.

COACH SCREW-DOUBLE END, GIMLET POINT.



Fig. 43.

Prices Quoted on Application.

COACH SCREW-GIMLET POINT, WITH PIPE THREAD.



Fig 44

Prices Quoted on Application.

HANGER BOLTS.

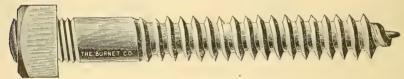


Fig 45.

Length.	Per Pound.
4 to 6 inch	\$0.20
5 to 7 inch	.16
6 to 8 inch	.15
7 to 9 inch	.14
8 to 12 inch	.14
	4 to 6 inch 5 to 7 inch 6 to 8 inch 7 to 9 inch

Any size made to order.

Hexagon Nuts, 10 per cent, extra.

AVERAGE WEIGHT OF COACH AND LAG SCREWS PER 100.

Diam,	15 16	3.8	7 16	3	18	58	3 4	$\frac{7}{8}$	1
Length.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.
1½ 1¾	4.75 5.25	7.10 7.60	9.88 10.87	13.90 14.95					
$egin{array}{c} 1rac{1}{2} & & & & & \\ 1^{3} & 2 & & & & \\ 2rac{1}{4} & & & & & \\ 2rac{1}{2} & & & & \\ 3 & & & & & \\ \end{array}$	5.75 6.25 6.75	8.10 8.70 9.35	11.63 12.50 13.40	15.80 16.90 17.90	24.00 25.00 26.00	26.25 27.75	46.50		
$3\frac{1}{2}$	$7.75 \\ 8.75$	$10.65 \\ 11.95$	15.10 16.50	19.87 22.00	28.00 31.00	29.25 33.50 36.50	51.50 56.50	73.00 79.00	103.00
$\frac{4}{4\frac{1}{2}}$ 5	9.75 10.75 11.75	13.30 14.70 16.10	18.60 20.40 22.10	24.30 26.87 29.00	$ \begin{array}{r} 34.00 \\ 37.00 \\ 40.00 \end{array} $	$ \begin{array}{r} 39.50 \\ 42.20 \\ 46.00 \end{array} $	$\begin{array}{c} 61.50 \\ 67.00 \\ 72.25 \end{array}$	85.00 91.00 97.00	112.00 121.00 130.00
5½ 6 7	12.75 13.75	17.50 18.90	23.80 25.50 29.25	31.50 34.00 39.00	43.00 46.00 52.00	49.40 53.00 60.00	78.00 83.50 94.00	$\begin{array}{c} 103.00 \\ 110.00 \\ 125.00 \end{array}$	$\begin{array}{c} 140.00 \\ 150.00 \\ 170.00 \end{array}$
8 9			33.00	44.00 49.00	58.00 64.00	67.50 75.00	104.50 115.00	$140.00 \\ 156.00$	190.00 210.00
10 11 12				54.00	70.00 76.00 82.00	82.50 90.00 98.00	$ \begin{array}{c c} 126.00 \\ 137.00 \\ 148.00 \end{array} $	$ \begin{array}{c} 172.00 \\ 188.00 \\ 204.00 \end{array} $	230.00 250.00 270.00

IRON WOOD SCREWS.

FLAT, ROUND AND OVAL HEAD.

Adopted January 1, 1900.

_																									
No.	0	1	2	3	4	•	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26	28	30
In.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cta.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
1 1	63	63	£3	63	63					_	-	_											_		_
3	63	63	63	63	63	63	64	71	80	84													3.		
8	00			63				76			87	00	100									Gross	kage		
5		63	63		63	64	66		80			92		100	112								package		
Š		63	63	63	63	67	72	78	85	88	91	95		105		140	105					10	in a		
4	• • • • •		63	64	65	70.	77	82	88	92	97	105	110		125	140									
78	• • • •		65	67	70	75	82	87	92	95	105	110	115	125	135	160		,						1	
1				73	76	80	87	93	98	105	115	120	125	140	160	185	A 7 - WATE	230	265	315		-		9.	
11				80	83	91	98	105	110	115	120	130	140	155	75	200	230	255	280	335	400	475	Gross	package.	
$1\frac{1}{2}$				90	95	100	105	11	12	125	130	140	155	170	190	220	245	275	315	350	420	495	5 6		
13						120	125	133	140	145	150	160	170	185	205	235	265	300	340	400	470	525		립	
2						130	135	140	150	155	160	170	180	205	235	265	295	330	385	440	480	550	1	•	
2}						145	150	155	160	165	175	185	200	220	245	285	325	3 55	410	485	525	575	Gr. i	ъg.я.	
2						175	180	185	190	200	210	215	225	240	260	305	340	375	435	520	585	650		D,	
2;							220	225	230	235	240	245	255	265	285	325	365	405	475	570	66 J	740			
3							260	265	270	275	280	285	290	300	315	340	385	440	510	615	685	770	940		
31			- 1 1 4						350	360	370	380	395	405	415	435	460	495	575	680	760	875	1060		
4									440	450	460	470	480	490	500	520	535	605	675	785	875	1005	1210	1410	1625
41													610	620	635	665		725				1165			
5													710	730	760	80u	840					1325			
.													870	900				1175				1620			
6								••••	• • • • •				010	500	930	590	TOOU	1175				in a p			2010

BRASS AND BRONZE WOOD SCREWS. $^{\gamma}$

FLAT, ROUND AND OVAL HEAD.

6	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26	28	30
No						-					"		~-												
-	-	_								—	-				_	—	-	-	-		_				
	m,	m	r n	mî.		, i	m	ri I	'n	m.		ro.				m.	rn e	70	m,	m.	20		an.		
Ė	Cts	Cts	Cts	Cts.	Cts	Cts.	Cts	Cts,	Cts.	Cts	Cts.	Cts.	Cts	Cts	Cts	Cts.	Cts	Cts.	Cts.	Cts.	Cts.	Cts	Cts	Cts.	Cts
``								-		-					Ť	_		_		Ť	·	-			
					-		-		-				_	_		_			_	-	-		-		_
1	80	80	81	87	91	97																	-		
409	80	82	86	89	\$5	103	110	120	135																
1		86	89	93	103	110	120	130	150	170	190														
5.		91	91	99	106	120	130	150	170	190	215	240	265	300	335	370	410								
3	• • • •		106	110	115	130	145	160	190	215	240	265	300	335	370	410	450								
78			135	140	145	150	155	180	205	235	265	295	335	370	410	455	505	0.01							
1,	• • • •			155° 205	160 210	165	170	195 225	230	260		330	365	410	455	500	555		mo=	Out					
14	• • • •				285	215 290	230	300	265 305	300 345	325 395	385 445	435 500	485 560	585 625	595 690	655 760	720 835	785 915	935 1085	1065		- 1		ì
15	• • • •	• • • • •			₩00	200	375	380	385			505	570	635	710	790			1045			1695			
2							480	485	490	495		565	640	715	795	880			1170				1		1
21							100		685	690	695	700	705	790	880		1075								
21										940	950		900	965			1185								
23										1150	1160						1200								
3											1370		1380	1385	1390	1395	1400	1540	1680	1995	2340	2710	3115	3585	4118
31							1		1		1585	1590	1595	1600	1605	1610	1620	1770	1940	2275	2690	3120	3580	4120	4745

NICKEL-PLATED WOOD SCREWS.

FLAT AND ROUND HEAD IRON.

No.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20
In.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Ct∘.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cis.
1 1 1 1 2 2 2 2 2 2 3 3 4 4 4 5 3 5 4 5 5 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6	145 145 145 	145 145 145 	145 145 145 145 150 155	145 145 145 150 155 155 188 215	145 145 150 155 155 165 194 220	150 155 157 161 168 180 205 230 240	160 163 170 170 175 195 215 240 250 285 345	185 190 190 195 210 238 255 270 300 355	205 215 220 225 230 250 280 300 325 365	235 240 245 260 285 312 345 375 400	270 275 280 295 315 345 375 400 425	315 325 335 355 380 405 430 475	360 370 385 400 420 445 480 510	420 440 460 500 530 585	465 485 510 555 610 665	585 615 670 725 790
$\frac{2\frac{1}{234}}{2^{34}}$: :				: :			: :			$\begin{array}{c c} 460 \\ 500 \end{array}$		$\begin{array}{ c c c }\hline 540 \\ 620 \end{array}$: :	730 805	875 945

NICKEL-PLATED WOOD SCREWS.

FLAT AND ROUND HEAD BRASS.

No.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20
In.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Ct≈.	its.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Ctc. C	Cis.
1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	165 170 175 	170 175 185	180 190 200 210 220 260	190 200 210 230 240 270 325 385	205 215 235 255 270 300 335 395	215 240 255 275 295 330 370 405 495	245 270 290 310 335 375 420 465 510 685 900	305 330 355 380 430 480 530 580 700 920	350 375 405 480 485 545 600 660 720 935		14 1 700	1105	660 700 785 880 965 1055 1145 1230 1325 1415	1360	950 1060 1: 1170 1: 1275 1: 1385 1: 1490 1: 1705 2:	390 520 645 775 900

DISCOUNTS.

Flat Head, Nickel Plated on Iron		v	Per cent.
Round Head, Nickel Plated on Iron			66
Flat Head, Nickel Plated on Brass		,	46
Round Hean, Nickel Plated on Brass			66

ROUND HEAD.

Fig. 46.

IRON MACHINE SCREWS-PER CROSS.

THREADS PER INCH.



FLAT HEAD. Fig. 47.

	56	48	32, 4		3	0,	32		30, 32	20	24	$ \begin{bmatrix} 16 \\ 18 \\ 20 \end{bmatrix} $:	16,	18		14,	1	6
No.	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30
In.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	C s
9년 4년 5년 1월	25 25 27 27 29 33 33 37 	25 25 27 27 27 29 33 33 37 48	25 25 27 27 27 29 29 29 33 33 37 48 55 75 75 70 100	299 299 31 31 33 33 36 42 48 55 75 75 75 100 100	29 29 31 31 33 33 36 36 42 48 55 75 75 100 100 125 150	35 35 38 38 38 41 41 46 46 52 60 70 85 85 115 1135 165 	35 35 38 38 41 41 46 46 52 60 70 85 85 115 115 200 235 275 325	433 46 46 49 49 49 54 54 63 72 105 135 170 200 200 2275 325 375	43	555 599 599 599 599 666 666 744 855 125 1600 1800 2100 2200 3400 390	688 74 74 74 74 81 81 88 1000 115 145 180 205 230 2275 325 365 425	95 95 95 95 100 110 120 135 165 200 240 275 340 345 385 465	105 110 110 115 115 130 140 155 185 220 255 290 255 325 325 3415	125 125 135 155 165 180 210 250 250 290 335 370 415 475	145 165 165 175 190 250 250 300 345 395 490 555 650	170 190 190 200 220 255 300 360 410 465 500 575 645 745	235 245 270 310 360 360 430 430 485 545 545 585 670 745 850	320 330 375 435 510 510 635 690 775 860 970	665 735 800 890 985

BRASS MACHINE SCREWS,-PER GROSS.

THREADS PER INCH. - 36 30, 16, No. Cts. In. 900 1125 . . 850 1060 1300 1575 . . 990 1245 1540 1875 1 1 1 990 1245 1540 1875 890 1155 1470 1835 2250 890 1155 1470 1835 2250 985 1270 1605 2040 2425 2 2 2 825 1060 1355 1710 2180 2600 925 1180 1495 1870 2305 2800 2 2 3 4 900 1050 1250 1550 1980 2535 3050 900 1000 1100 1200 1400 1700 2180 2750 3300 ٠. . . 900|1000|1100|1250|1400|1600|1900|2410|2970|3600

MACHINE SCREW NUTS-TAPPED, COLD PRESSED.

IRON AND BRASS SQUARE NUTS.









Fig. 52.





No. 4.

Fig. 48.

No. 6. Fig. 49.

No. 8.

Fig. 50.

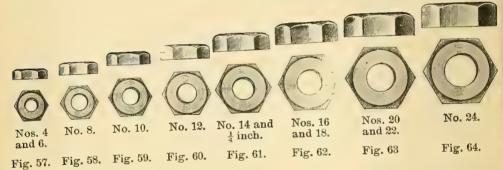
No. 10. Fig. 51.

No. 14 and $\frac{1}{4}$ inch. Fig. 53.

Nos. 16 and 18. Fig. 54.

					•	Per G	ross.
		Per (dross.	No.	Threads.	Iron.	Brass.
No.	Threads.	Iron.	Brass.		16, 18	\$0.62	\$1. 88
4	32, 36, 40	\$0.2 3	\$0.72	18	*	.82	2.45
_	30, 32	.23	.72	20	16, 18	.93	2.70
6	30, 32	.26	.80	22	16, 18	1.06	3.17
8	24, 30, 32	.29	.87	24	14, 16		3.60
10		.32	.94	26	14, 16	1.20	4.10
12	20, 24	.36	1.08	28	14, 16	1.35	
14	20, 24	.48	1.44	30	14, 16	1.50	4.55
16	16, 18, 20	.40					

HEXACON IRON AND HEXACON BRASS NUTS. TAPPED, COLD PRESSED.



		Per 6	dross.			Per G	
2.7	Threads.	Iron.	Brass.	No.	Threads.	Iron.	Brass.
No.		\$0.36	\$1.08	18	16, 18	\$0.94	\$2.81
4	32, 36, 40	.36	1.08	20	16, 18	1.22	3.67
6	30, 32	.40	1.22	22	16, 18	1.44	4.32
8	30, 32	.43	1.30	24	14, 16	1.58	4.75
10	1, 30, 32 20, 24	.48	1.44	26	14, 16	1.80	5.40
12	20, 24	.55	1.66	28	14, 16	2.02	6.05
14 .		.72	2.16	30	14, 16	2.30	6.91
16	16, 18, 20	.72	2.16	90	14, 10	χσσ	

IRON SET SCREWS.



Fig. 65.
Regular Round Point.



Fig. 66.

Cup Point.

PRICE PER 100.

Diameter of Screw.	14	76 76	38	7	$\frac{1}{2}$	9 16	<u>5</u>	3 4	7/8	1	11/8	114
Length under Head to Extreme Point. 9. 7. 7. 7. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	2.00 2.15 2.30 2.45 2.60 3.05 3.30 3.55 3.80	2.20 2.35 2.50 2.65 2.80 3.00 3.25 3.55 3.85 4.15 4.45	2.50 2.65 2.80 2.95 3.10 3.30 3.55 3.85 4.20 5.25	2.90 3.10 3.30 3.50 3.70 3.95 4.25 4.60 5.00 6.35 6.80	3.40 3.60 3.80 4.00 4.20 4.45 4.75 5.10 5.50 6.45 6.95 7.45 7.95	4.25 4.25 4.50 4.75 5.00 5.30 5.65 6.05 6.50 7.00 7.55 8.10 8.65 9.20 9.75	5.00 5.00 5.25 5.50 5.75 6.05 6.40 6.80 7.25 8.35 8.95 9.55 10.15 11.35	7.00 7.00 7.50 8.00 9.30 10.00 11.70 12.70 13.70 14.70 15.70 16.70 17.70 18.70	11.30 12.00 12.90 13.80 14.80 15.90 17.10 18.40 19.70 21.00 22.30 23.60 24.90 26.20 27.50	14.90 15.90 17.00 18.40 19.80 21.40 23.00 24.70 26.40 28.10 29.80 31.50 33.20 34.90 36.60	19.50 21.10 22.90 24.70 26.70 28.80 31.00 33.20 35.40 37.60 39.80 42.00 44.20 46.40	25.30 27.40 29.60 32.00 34.60 37.40 40.20 45.80 51.40 54.20 57.00
I'hreads to inch	20	18	16	14	12	12	11	10	9	8	7	7
Add for each ‡ inch	25	30	35	45	50	55	60	1.00	1.30	1.70	2.20	2.80

STEEL SET SCREWS.

PRICE PER 100.

Diameter of Scrow.	14	5 16	38	7 16	1/2	9 16	5/20	3 4	7 8	1	11/8	11
Head to Extreme Point.	2.50 2.65 2.85 3.05 3.25 3.50 3.80 4.10 4.45 4.75	2.75 2.90 3.10 3.30 3.50 3.75 4.05 4.45 4.80 5.20 5.55	3.10 3.30 3.50 3.70 3.90 4.15 4.45 4.80 5.25 5.70 6.10	3.60 3.90 4.15 4.40 4.65 4.95 5.30 5.75 6.20 6.75 7.30	4.25 4.50 4.75 5.00 5.25 5.55 5.90 6.35 6.85 7.45 8.05	5.30 5.30 5.60 5.90 6.25 6.60 7.05 7.55 8.10 8.75 9.45	6.25 6.25 6.55 6.90 7.25 7.60 8.00 8.50 9.05 9.70 10.45	8.75 8.75 9.35 10.00 10.75 11.60 12.50 13.50 14.60 15.85	14.10 14.10 15.00 16.10 17.25 18.50 19.85 21.35 23.00	18.60 19.80 21.25 23.00 24.70 26.65 28.75 30.85	24.40 26.35 28.60 30.85 33.40 36.00 38.75	31.60 34.25 37.00 40.00 43.25 46.75
Length under H			6.55	7.90 8.50	8.70 9.35 9.95	10.15 10.85 11.50 12.20	11.20 11.95 12.70 13.45 14.20	17.10 18.35 19.60 20.85 22.10 23.40	24.60 26.25 27.85 29.50 31.00 32.75 34.40	33.25 35.15 37.25 39.40 41.50 43.60 45.75	41.50 44.30 47.00 49.75 52.50 55.25 58.00	50.25 53.75 57.25 60.75 64.30 67.95 71.25
Threads to inch Add for each thich	20 35	$\begin{array}{ c c }\hline 18 \\ \hline 40 \\ \hline \end{array}$	16 50	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{12}{70}$	12 80	90	1.30	$\frac{9}{1.75}$	8 2.30	3.00	3,75

SQUARE HEAD CAP SCREWS.

PRICE PER 100.

	Diameter of Head.	300	7 16	1/2	9	8	116	34	7 8	118	114	18	11/2	15
	Length of Head.	1 4	5 16	3.	7 16	1/2	9 16	1598	3 4	7 8	1	118	11/4	18
	Diameter of Screw.	1 1	5 16	3.8	7 16	1/2	9 16	50	34	78	1	118	11	18
	.ii 1 ³ 4	\$ 2.40 2.60	\$ 2.75 2.95	\$ 3.20 3.40	\$ 3.80 4.00	\$ 4.40 4.70	\$ 5 75 5.75	\$ 7.70	\$	\$	\$	\$	\$	\$
	Length under Head to Extreme Point Length under Head to Extreme Point Research 19	2.75 2.90 3.05	3.10 3.30 3.50	$3.65 \\ 3.85 \\ 4.10$	$\frac{4.20}{4.45}$	4.95 5.25 5.55	6.05 6.35 6.65	7.70 8.25 8.80	10 50 10 50 11.10	14.80	18.00			
	to Extra	3.50	4.35	4.65 5.00	5.60	5.90 6.30 6.75	7.05 7.55 8.15	10 10 10.90	12.60 13.50	16.70 17.80	19.00 20.20 21. 5 0	25.80	32 00	39.00
	Head t	4.25	4 70 5.05 5.40	$\frac{5.90}{6.35}$	$\frac{6.55}{7.10}$	7.25 7.80 8.45	10.55	12.80 14.00	15.90 17 40	20.60 22.40	27.30	30.50 33.50	37.00 40 50	45 00 49.00
	314 31/2 33/4 4			6,80	7.65 8.20	9.75	12.35 13.25	15.20 16.40 17.60	20.40 21.90	$\frac{26.00}{27.80}$	31 90 34.20	$\begin{vmatrix} 39 & 50 \\ 42.50 \end{vmatrix}$	47.50 51.00	57.00 61.00
Fig. 67.	Cength 1 41/4 43/4 2					• • • • •	14.15		24.90 26 40	$31.40 \\ 33.20$	38,80 41,10	$48.50 \\ 51.50$	58 00 61.50	65 00 (9 00 73.(0 77 00
	Threads to inch.	20	18	16	14	12	12	11	10	9	8	7	7	6
	Add for each 14 inch.	25	35	45	55	65	90	1.20	1.:0	1.80	2.30	3 00	3.50	4.00

HEXACON HEAD CAP SCREWS.

PRICE PER 100.

	Diameter of Head.	7 16	1/2	9	56	3/4	13	7/8	1	11/8	114	1%	1½
	Length of Head.	1/4	<u>5</u> 16	3/s	7 16	1/2	9 16	5/8	3/4	7 ⁄8	1	11/8	11/4
	Diameter of Screw.	1/4	5 16	8/9	7	1/2	78	5/8	3/4	7∕8	1	11/8	11/4
F g, 68.	Threads to inch.	\$ 3,00 3.25 3.50 3.75 4.00 4.25 4.55 5.15 5.45	\$ 3.25 3.50 3.75 4.00 4.25 4.60 5.00 5.40 6.20 6.60	\$ 3.75 4.00 4.25 4.50 4.75 5.40 5.40 5.80 6.80 7.20 7.80	\$ 4.40 4.70 5.00 5.00 5.60 5.95 6.80 7.30 7.30 9.10 9.70	\$ 5.50 5.70 6.00 6.30 6.60 7.00 8.60 9.30 10.10 10.90 11.70 12.50	\$ 7.00 7.00 7.50 8.00 8.50 9.10 9.70 10.40 11.20 12.10 13.10 14.10 15.10 17.10	\$ 9.50 9.50 10.00 10.60 11.20 11.20 12.70 13.60 14.70 16.00 17.30 18.60 19.90 21.20 22.50 11	\$ 12.20 12.20 12.80 13.40 14.10 14.90 15.90 18.60 20.20 21.80 23.40 25.00 26.60 28.20 10 1.60	\$ 16 00 16.60 17.20 18 80 20.00 21 80 23 80 25.80 27.80 29.80 31.80 35.80 37.80	\$ 21 20 22.30 23 60 25.510 26.90 29 00 31.40 41.00 43.40 45.80 8 2 40 8	\$ 29 00 30.50 32.30 32.30 34.40 40.00 43.00 440.00 552.00 555.00 61.00 7 3.00	\$ 37.50 39.30 41.40 44.00 47.50 55.50 55.50 67.50 67.50 77.50 79.50 79.50

Steel Cap Screws 25 per cent. additional.



FLAT HEAD CAP SCREWS.

MILLED FROM SOLID BAR.



PRICE PER 100.

	_	g. 69. Hea'.							Fig. French	70. Head.	
	Diameter o Head, Diameter o	e i	38	1 5001	<u>5</u>	3 4	13 16	<u>7</u> 8	1	1 <u>1</u> 8	$1\frac{3}{8}$
	Screw.	1 18	3 16	$\frac{1}{4}$	5	38	176	<u>1</u> 2	$\frac{9}{16}$	<u>5</u> 8	3. 4
ľ.	3.	$\frac{2.25}{2.50}$	$\frac{2.50}{2.75}$	3.10 3.35	$\frac{4.00}{4.25}$	$5.00 \\ 5.30$	6,60				
talL.	11/4	2.75	3.00	3.60	4.50	5.60	6.90	9.00	• •		
OVER	$1\frac{1}{4}$ $1\frac{1}{5}$ $1\frac{3}{4}$ 2	$3.00 \\ 3.25$	$\frac{3.25}{3.50}$	$\frac{3.85}{4.10}$	$\frac{4.75}{5.00}$	$\frac{5.90}{6.20}$	$7.20 \\ 7.50$	$\frac{9.50}{10.00}$	$12.00 \\ 12.50$	14.50	
			3.75	$\frac{4.35}{4.75}$	5.50 6.00	$\frac{6.75}{7.25}$	$8.00 \\ 8.50$	$10.75 \\ 11.50$	$\frac{13.00}{13.75}$	15.25 16.00	$19.20 \\ 20.20$
LENGIH	$2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{1}{4}$ $2\frac{1}{4}$ $2\frac{1}{4}$ $2\frac{1}{4}$				$\frac{6.50}{7.00}$	$7.75 \\ 8.25$	$9.00 \\ 9.50$	$12.00 \\ 12.75$	$14.50 \\ 15.25$	$16.75 \\ 17.50$	$21.25 \\ 22.40$
7	3					8.75	10.00	13.50	16.00	18.30	23.60
	Threads to inch.	40	24	20	18	16	14	12	12	11	10
A	dd for each	¹ 25	25	40	5 0	50	50	50	75	1.00	1.25

BUTTON HEAD CAP SCREWS

MILLED FROM SOLID BAR,

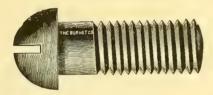


Fig. 71.

PRICE PER 100.

	ameter of Head.	Full	5 16	16	<u>9</u> 16	58	$\frac{3}{4}$	13 16	15	1	$1\frac{1}{4}$
Di	ameter of Body.	of $\frac{1}{8}$	$\frac{3}{16}$	1/4	16	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	76 T6	<u>5</u> 8	$\frac{3}{4}$
LENG H UNDER HEAD TO EXTREME POINT.	$\begin{array}{c} \frac{3}{4} \\ 1 \\ 1 \\ \frac{1}{4} \\ \frac{1}{4} \\ \frac{1}{4} \\ 2 \\ \frac{1}{2} \\ \frac{1}{4} \\ 2 \\ \frac{1}{2} \\ 1$	2.25 2.50 2.75 3.00 3.25	2.50 2.75 3.00 3.25 3.50 3.75	3.00 3.25 3.50 3.75 4.00 4.35 4.75	3.50 3.75 4.00 4.25 4.50 5.00 5.50 6.00	4.00 4.25 4.50 4.75 5.00 5.50 6.00 6.50 7.00	5.00 5.30 5.60 5.90 6.20 6.75 7.25 7.75 8.25 8.75	6.60 6.90 7.20 7.50 8.00 8.50 9.00 9.50 10.00	9.00 9.50 10.00 10.75 11.50 12.00 12.75 13.50	12.00 12.50 13.00 13.75 14.50 15.25 16.00	18.20 19.20 20.20 21.25 22.40 23.60
Tì	hreads to	40	24	20	18	16	14	12	12	11	10
Add	for each $\frac{1}{4}$ inch.	eh 25	25	40	50	50	50	50	75	75	1.15

No. 4 Wire, Price of Steel Screws 25 per cent, above the price of Iron Screws.

ROUND AND FILISTER HEAD CAP SCREWS.





Fig. 72.

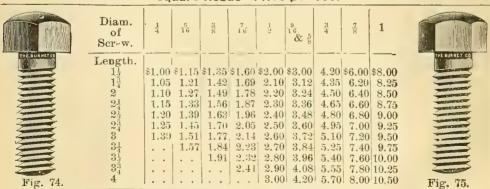
Price per 100.

Fig. 73.

Diameter of Head.	13 ₋	$\frac{1}{4}$	3/8	7	16	5.8	3 4	13	7.8	1	11/8	1.1
Length of	1 8	-3 ₅	1 4	5 1 6	318	7 16	1 2	1 ⁹ 6	58	3 4	78	1
Diameter of Screw.	18	3 16	1/4	5.	3 8	76	2	1 ⁹ 5	5.8	3 4	38	1
Length under Head to Extreme Point.	\$2 00 2 25 2 50 2 50 3 00 3 25 3 50 3 75 	\$2 25 2 50 2 70 3 70 3 25 3 50 3 75 4 70 4 25 	\$2 50 2 75 3 00 3 25 3 50 8 75 4 00 4 25 4 25 4 75 	\$3 00 3 25 3 50 3 75 4 00 4 35 4 75 5 55 5 95 6 35	\$3 50 3 75 4 00 4 25 4 50 5 00 5 50 6 00 6 50 7 00 7 50 8 00	\$4 00 4 25 4 50 4 75 5 00 5 50 6 00 7 50 8 00 8 50 9 00	\$5 00 5 30 5 60 5 90 6 20 6 75 7 25 7 75 8 25 8 75 10 25 10 75	\$6 60 6 90 7 20 7 50 8 00 8 50 9 00 9 50 10 00 11 00 11 50 12 00 12 50	\$9 00 9 50 10 00 11 50 12 75 13 50 14 25 15 00 15 75 16 50 17 25 18 00	\$12 00	\$15 25 16 06 16 75 17 50 18 30 19 10 20 00 21 00 22 00 23 00 24 00 25 09 26 00 27 00	\$19 27 20 21 21 25 22 41 23 60 24 85 26 10 27 35 28 60 29 85 31 10 31 23 33 60
Threads to inc .	40	24	20	18	16	14	12	12	11	10	Ð	8
Add tore c	25	25	25	40	50	50	50	50	75	75	1 00	1 25

Manufacturers' Standard List of

FORGED SET SCREWS AND TAP BOLTS. Square Heads Price per 100.



With Hexagon Hears 10 per cent. extra

Heads of Hexagon Tap Bolts are made finished size of United States Standard Nuts for same diameter.

PRESSED WROUGHT IRON TURNBUCKLES.

WITH RIGHT AND LEFT STUB BOLT ENDS.



Fig. 76.

	Inside	Outside	Total Length	
Diameter of	Opening of	Length of	of Buckle with	Price
Stub Ends.	Buckle.	Buckle,	Stud Ends in,	Each.
$\frac{3}{8}$ inch.	$4\frac{3}{4}$ inches.	$6\frac{1}{2}$ inches.	17 inches.	\$0.40
7 66	$4\frac{3}{4}$ "	$6\frac{1}{2}$ "	17 "	.42
716 · · · · · · · · · · · · · · · · · · ·	6 "	8 "	21 "	.45
<u>5</u> "	6 "	81 "	23 "	.50
3 · · ·	6 "	81 "	23 "	.63
	6 "	9 "	23 "	.75
1 "	6 "	9 "	23 " .	.88
$1\frac{1}{8}$ "	6 "	$9\frac{1}{4}$ "	23 "	1.00
1 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6 "	9½ " 9¾ "	23 "	1,25
18 "	6 "	生	23 "	1.38
$1\frac{1}{2}$ "	64 "	$10\frac{1}{2}$ "	25 "	1.50
$1\frac{3}{4}$ "	$6\frac{1}{4}$ "	$11\frac{1}{2}$ "	26 "	2.00

Prices for larger sizes Turnbuckles quoted on application.

Longer Turnbuckles are made to order at special prices.

Turnbuckles with swivel in one end furnished to order.

PIPE SWIVELS.



WITH RIGHT AND LEFT HAND THREADS AND STUB ENDS.

		Length		Outside		List
Diam. of	Length	between	Length of	Diam, of	${ m Thickness}$	Price.
Screw.	of Swivel.	Nuts.	Nuis.	Pipe.	of Pipe.	Each.
3	5	$3\frac{3}{4}$	<u>5</u>	.840	.109	\$0.60
<u>1</u>	$5\frac{1}{2}$	$3\frac{3}{4}$	$\frac{7}{8}$	1.050	.113	.80
5	7	$4\frac{\hat{3}}{4}$	$1^{rac{1}{8}}$	1.315	.134	1.00
3/4	7	$4\frac{\hat{3}}{4}$	$1\frac{1}{8}$	1.315	.134	1.25
7/8	8	$5\frac{1}{2}$	$1\frac{1}{4}$	1.660	.140	1.50
1	$9\frac{1}{2}$	$6\frac{\bar{1}}{2}$	$1\frac{\tilde{1}}{2}$	1.900	.145	2.00
15	$9\frac{1}{2}$	$6\frac{\overline{1}}{2}$	$1\frac{3}{4}$	1.900	.145	2.50
1 1 1	$11\frac{1}{2}$	8	$1\frac{3}{4}$	2.375	.154	3.00
1훏	$11\frac{1}{2}$	8	$1\frac{3}{4}$	2.375	.154	3.50
$1\frac{1}{2}$	$13\frac{1}{2}$	· 8½	$2\frac{1}{2}$	2.875	.204	4.00
$1\frac{5}{8}$	$13\frac{1}{2}$	$8\frac{\overline{1}}{2}$	$2\frac{\overline{1}}{2}$	2.875	.204	4.50
13/4	$13\frac{7}{2}$	8 1	$2\frac{1}{2}$	2.875	.204	5.00
1 7	15	$9\frac{1}{2}$	$2\frac{3}{4}$	3.5 00	.217	5.50
2	15	$9\frac{1}{2}$	$2\frac{3}{4}$	3.500	.217	6.00

List prices of Sleeve Nuts same as above.

Bunti co

Fig. 78.

PLATE WASHERS.

MANUFACTURERS' STANDARD LIST.

Diameter.	Size of Hole.	Thickness Wire Gauge.	Size of Bolt.	Price per lb.	Number in 100 lbs.
9 16	$\frac{1}{4}$	No. 18	16	14.0	45000
3		" 16	14	12.2	13900
3 4 2 8	1 b 3	" 16	5	11.4	11250
1	$\frac{\frac{5}{16}}{\frac{3}{8}}$	" 14	16 3 8	10.5	6800
11/4		" 14	76	9.7	4300
$1\frac{3}{8}$, <u>2</u>	" 12	1/2	9.2	2600
$1\frac{1}{2}$	5	" 12	9	9.1	2250
$1\frac{3}{4}$	1 2 16 5 8 116	· · 10		9.0	1310
2	1 6 13 1 6	" 10	58 31 4 78	8.8	1010
$\frac{2}{1}$	1 6 15 16	" 9	7	8.8	867
$\frac{\sim_4}{2\frac{1}{2}}$	116	" 9	1	8.8	634
$2\frac{3}{4}$	$1\frac{1}{4}$	" 9	1 1 8	8.8	500
3	$1\frac{3}{8}$	<i>16</i> 9	$1\frac{1}{4}$	9.0	367
$3\frac{1}{4}$	$1\frac{1}{2}$	" 8	$1\frac{3}{8}$	9.0	300
$3\frac{1}{2}$	1 <u>5</u>	" 8	$1\frac{1}{2}$	9.2	267
$3\frac{3}{4}$	$1\frac{3}{4}$	" 8	1 8	9.2	247
4	$1\frac{7}{8}$	" 8	$1\frac{3}{4}$	9.5	224
$4\frac{1}{4}$	2	" 8	$1\frac{7}{8}$	9.5	200
$4\frac{1}{2}$	2 1	" 8	2	9.5	180



Fig. 79. Countersunk for bolt head.

ROUND CAST WASHERS.

Regular sizes carried in stock.

WEIGHT PER 100.

Prices on application.



Fig. 80. Round Washer.

Diameter, inches	11	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	7	$7\frac{1}{2}$
Thickness, inches	$\frac{5}{16}$	<u>3</u>	$\frac{1}{2}$	5/8	3 4	78	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	11/2	15
Size bolt	3/8	$\frac{1}{2}$	<u>5</u>	$\frac{3}{4}$	7/8	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Weight per 100.	$8\frac{1}{2}$	22	45	72	115	180	215	320	425	525	1150	1 5 ã0
Price per lb. \$.												



Fig. 81. Square Beveled.

BEVELED CAST WASHERS.

Prices on application.

We are prepared to furnish any style of cast washers on receipt of pattern or description.



Fig. 82. Round Beveled.

U. S. STANDARD

HOT-PRESSED SQUARE AND HEXACON NUTS

AND

HOT-PRESSED REAMED SQUARE AND HEXAGON NUTS.



Fig. 83.

Adopted as the Standard of the United States Government.

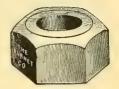


Fig. 84.

er.			٠		SQUARE.			HEXAGON	
Short Diameter.	Thickness.	. Hole.	f Bolt.	Pric	ee per Po	und.	Pric	e per Po	und.
rt Di	Thick	. 110101	Size of	Hot P	ressed.	Reamed	Hot P	ressed.	Reamed
$_{ m Sho}$				Blank.	Tapped.	Blank.	Blank	Tapped.	Blank.
122 9/31 1/65 9/30 1/31 1/65 1/6 3/6 3/6 3/6 5/6 5/6 1/6 1/6 1/6 1/6 1/6 3/6 3/6 3/6 5/6 5/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1	14 5 6 7 3 5 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	$.185 = \frac{3}{16} \text{ scant.}$ $.240 = \frac{1}{4} \text{ scant.}$ $.294 = \frac{1}{64} \text{ scant.}$ $.294 = \frac{1}{64} \text{ scant.}$ $.344 = \frac{1}{32}$ $.400 = \frac{1}{32} \text{ scant.}$ $.454 = \frac{29}{64}$ $.507 = \frac{1}{2} \text{ full.}$ $.620 = \frac{5}{8} \text{ scant.}$ $.731 = \frac{4}{64} \text{ scant.}$ $.837 = \frac{2}{37} \text{ scant.}$ $.940 = \frac{15}{16} \text{ full.}$ $1.065 = \frac{1}{16} \text{ full.}$ $1.160 = \frac{1}{52} \text{ full.}$ $1.284 = \frac{1}{32} \text{ full.}$ $1.389 = \frac{126}{64} \text{ scant.}$ $1.491 = \frac{1}{2} \text{ scant.}$ $1.616 = \frac{15}{8} \text{ scant.}$ $1.712 = \frac{125}{32} \text{ scant.}$ $1.836 = \frac{1}{31} \text{ scant.}$ $1.962 = \frac{1}{31} \text{ scant.}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	13.0 12.0 10.5 10.0 9.0 9.0 8.7 8.5 8.4 8.2 8.2 8.4 8.5 9.0 9.3 9.5 9.7 10.0	15.0 13.5 11.6 10.9 9.7 9.6 9.2 8.9 8.8 8.6 8.6 8.9 9.4 9.7 10.0 10.3 10.6 11.0	13.8 12.8 11.0 10.5 9.3 9.3 8.9 8.6 8.4 8.4 8.8 9.6 10.2 10.2 10.6 11.0 11.5	20.0 18.0 14.0 13.0 11.2 11.2 10.5 10.0 9.9 9.7 9.9 10.0 10.3 10.5 11.8 11.9 11.7	22.5 20.0 15.6 14.3 12.2 12.1 11.2 10.6 10.5 10.3 10.5 10.7 11.1 11.4 11.7 12.0 12.3 12.9	21.0 19.0 14.7 13.7 11.5 10.7 10.2 10.0 10.0 10.5 11.3 11.3 12.1 12.6 13.0 13.5
$3\frac{11}{16}$	$\frac{2\frac{3}{8}}{2\frac{1}{8}}$	$\begin{array}{c} 2.086 = 2\frac{5}{46} \text{ scant.} \\ 2\frac{5}{16} \end{array}$	$2\frac{3}{8}$ $2\frac{1}{2}$	$10.3 \\ 10.5$	11.5 11.8	$12.0 \\ 12.2$	12.2 12.4	13.6	14.0 14.2
14	$\begin{array}{c} 2\\2\frac{3}{4}\\3 \end{array}$	$\begin{array}{c} 2\frac{16}{2\frac{7}{16}} \\ 2\frac{11}{16} \\ 2\frac{11}{16} \end{array}$	$\frac{2\frac{3}{4}}{3}$	11.0	12.4 13.0	12.7 13.2	13.0 13.5	14.6 15.2	15.0 15 6

For less than keg lots (200 pounds) of a size the following extras will be charged, viz:

At the rate of 20 cents per 100 pounds for 100 pounds or more.

At the rate of 50 cents per 100 pounds for less than 100 pounds.

U. S. STANDARD CHAMFERED, TRIMMED AND REAMED NUTS.



SQUARE AND HEXAGON.

HOT AND COLD PUNCHED.



Fig. 86.

7.75		85.	
P L	<i>P</i> .	Cilla	

er.	. 88		Size	SQUARE.			MEX GOA.		
Short Diameter.	Phickness	HOLE.	of Bolt.	Price	Price	· Average Number	Price	Price	Average Number
Dia	Thic		Doge.	per lb. Blank.	per 1b. Tapped.	in 100 lbs. Blank.	per lb. Blank.	per lb. Tapped.	in 100 lbs. Blank.
		$.185 = \frac{3}{16}$ scant.	1/4	20.0	22.0	7400	27.0	29.5	8880
1 2	1/4 E	$.240 = \frac{1}{4} \text{ scant.}$	4 5 16	18.0	19.5	4000	24.0	26.0	4800
$\frac{19}{32}$	5 16	-		14.5	15.6	2730	18.5	20.1	
$\frac{1}{1}\frac{1}{6}$, 3 , 6	$.294 = \frac{19}{64}$ scant.	3 8					19.3	3276
2 <u>5</u> 3 <u>2</u>	1 6	$.344 = \frac{11}{32}$	16	14.0	14.9	1700	18.0		2040
7/8	2	$.400 = \frac{13}{32}$ scant.	1/2	11.3	12.0	1160	14.0	15.0	1392
3 1 3 2	9 T 6	$.454 = \frac{29}{64}$	• 1 6	11.3	11.9	900	14.0	14.9	1080
1 1 1 6	5 8	.507= $\frac{1}{2}$ full.	<u>5</u>	10.0	10.5	653	12.5	13.2	784
$1\frac{1}{4}$	5 8 3 4	$.620 = \frac{5}{8} \text{ scant.}$	$\frac{3}{4}$	9.4	9.8	386	10.9	11.5	463
176	7 8	$.731 = \frac{47}{64}$ scant.	3 4 7 8	9.4	9.8	260	10.9	11.5	312
15	1	$.837 = \frac{27}{32}$ scant.	1	9.4	9.8	170	10.9	11.5	204
1 _{1,3}	1½	$.940 = \frac{15}{16}$ full.	1분	9.4	9.8	122	10.9	11.5	146
2	$1\frac{1}{4}$	$1.065 = 1_{16}^{-1}$ full.	$1\frac{1}{4}$	10.1	10.5	90	11.5	12.1	108
$2\frac{3}{16}$	$1\frac{3}{8}$	$1.160=1\frac{5}{32}$ full.	$1\frac{3}{8}$	10.3	10.8	69	12.0	12.7	83
$\frac{2\frac{3}{8}}{2\frac{3}{8}}$	$1\frac{1}{2}$	$1.284 = 1\frac{9}{32}$ full.	$1\frac{1}{2}$	10.7	11.3	54	12.6	13.4	65
2^{9}_{16}	15	$1.389 = 1\frac{2.5}{6.4}$ scant.	15	11.1	11.8	43	13.2	14.1	52
2^{3}_{4}	13	$1.491 = 1\frac{1}{2}$ scant.	$1\frac{3}{4}$	11.5	12.2	35	14.0	14.9	43
$2\frac{15}{16}$	1%	1.616=15 scant.	17/8	12.0	12.8	29	14.5	15.5	35
$\frac{31}{8}$	2	1.712=1 ²³ / ₃₂ scan ⁺ .	2	12.0	12.9	24	14.5	15.6	29
3,5	$2\frac{1}{8}$	$1.836 = 1\frac{27}{32}$ scant.	$2\frac{1}{8}$	12.5	13.5	$20\frac{1}{4}$	15.0	16.2	26
$\frac{31}{2}$	$2\frac{1}{4}$	$1.962 = 1\frac{31}{32}$ scant.	$2\frac{1}{4}$	12.5	13.6	17	15.0	16.3	23
3^{11}_{16}	$2\frac{3}{8}$	$2.080=2\frac{5}{84}$ full.	$2\frac{3}{8}$	13.5	14.7	15	16.0	17.4	20
$3\frac{7}{8}$	$2\frac{1}{2}$	$2.176=2\frac{11}{64}$ full.	21/3	13.5	14.8	12	16.0	17.5	16
- 8	1	0 1	_	1			1	(

These are extra fine unfinished nuts, cupped and trimmed outside to exact dimensions, and have reamed holes, at right angles to their bases, to suit U. S. Standard Taps, and are in all respect a superior article.

We make both Hot-Punched and Cold-Punched Chamfered, Trimmed, and Reamed Nuts; and the above list applies to both kinds.

For less than keg lots (200 pounds) of a size the following extras will be charged, viz.:

At the rate of 20 cents per 100 pounds for 100 pounds or more.

At the rate of 50 cents per 100 pounds for less than 100 pounds.



Fig. 87.

PLAIN GOLD PUNCHED NUTS.



Fig. 88.

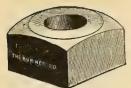
Square and Hexagon.

					SQUARE.		:	HEXAGO	Υ.
Wide.	Thick.	Hole.	Bott.	Price per lb. Blank	Price per lb. Tapped.	Average Number in 100 lbs. Blank,	Price per lb. Blank.	Price perlb. Tap ed.	Average Number in 100 lbs. Blank.
1.2	1.4	.185= $\frac{3}{16}$ scant.	1.1	13.8	15.8	6700	21.0	23.5	7500
1 9 5 2	1 6	.240= $\frac{1}{4}$ scant.	5 16	12.8	14.3	4100	19.0	21.0	4700
11 16	3 8	$.294 = \frac{1.9}{6.4}$ scant.	3/8	11.0	12.1	2400	14.7	16.3	2800
2 5 2 2	76	.344= $\frac{1}{3}\frac{1}{2}$	T ⁷ 6	10.5	11.4	1550	13.7	15.0	1830
7 8	1/2	.400= $\frac{18}{32}$ scant.	1. 2	9.3	10.0	1100	11.5	12.5	1300
3 <u>1</u> 3 2	1 g	$.454 = \frac{2.9}{6.4}$	1 b	9.3	9.9	825	11.5	12.4	990
116	5/8	.507= $\frac{1}{2}$ full.	518	8.9	9.4	580	10.7	11.4	700
1 1	85	$.620 = \frac{6}{8} \operatorname{scant}$.	3 4	8.6	9.0	348	10.2	10.8	438
178	7 8	$731 = \frac{47}{64}$ scant.	7 S	8.6	9.0	228	10.2	10.8	290
15	1	.837= $\frac{27}{32}$ scant.	1	8.4	8.8	156	10.0	10.6	198
113	11/8	$.940 = \frac{15}{16}$ full.	1 <u>1</u>	8.4	8.8	122	10.0	10.6	140
2	11	1.065=1 t full.	11	8.8	9.2	88	10.5	11.1	103
$2_{\tilde{1}\tilde{6}}^{3}$	13/8	1.160= $1\frac{5}{32}$ full.	13	8.8	9.3	65	10.5	11.2	77
$2\frac{3}{8}$	11/2	1.284=133 full.	15	9.6	10.2	54	11.3	12.1	63
2 1 8	15	1.389= $1\frac{2.5}{6.4}$ scant.	1 5	9.6	10.3	42	11.3	12.2	50
$2\frac{3}{4}$	13	$1.491 = 1\frac{1}{2}$ scant.	13	10.2	10.9	33	12.1	13.0	39
$2\tfrac{15}{16}$	17	$1.616=1\frac{5}{8}$ scant.	$1\frac{7}{8}$	10.2	11.0	27	12.1	13.1	31
$3\frac{1}{8}$	2	$1.712 = 1\frac{23}{32}$ scant.	2	10.6	11.5	23	12.6	13.7	28
3,5	218	1.836= $1\frac{27}{32}$ scant.	2 <u>1</u>	11.0	12.0	19	13.0	14.2	24
3 <u>t</u>	21	$1.962 = 1\frac{31}{32}$ scant.	$2\frac{1}{4}$	11.5	12.6	17	13.5	14.8	20

For less than keg lots (200 pounds) of a size the following extras will be charged, viz.:

At the rate of 20 cents per 100 pounds for 100 pounds or more.

At the rate of 50 cents per 100 pounds for less than 100 pounds.



AND HEXAGON NUTS.



Fig. 90.

Fig.	89.	

		SQU	ARE,					HEX	AGON.		
Short Diam.	Thick- ness.	Hole.	Size of Bolt.	Price prilb. Blank.	Price per lb. Tapped.	Short Diam.	Thick- ness.	Hole.	Size of Bolt.	Price per 1b. Blank.	Price per 1b. Tapped.
1/3	1/4	7 3 2	$\frac{1}{4}$	13.0	15.0	1.	1/4	7 3 3	1/4	20.0	22.5
5 8		32	1 6 1 6	11.5	13.0	5/3	_5 T 6	9 3 2	5 T 6	16.0	18.0
3	1 6 3 8	11	3 8	10.0	11.1	10 588 34 78	38	. 11	3	13.0	14.6
<u> </u>	16	11 32 25 64	7 16	9.2	10.1	$\frac{\hat{7}}{8}$	$\frac{7}{16}$	$\frac{25}{64}$.	7 16	11.4	12.7
1	1	76	1/2	8.7	9.4	1	$\frac{1}{2}$	$\frac{7}{16}$	$\frac{1}{2}$	10.5	11.5
1 <u>1</u> 8	1 2 1 6	1/2 9/16	1/2 9/6	8.6	9.2	1 1 g	9 16	$\frac{1}{2}$	9 16	10.4	11.3
$1\frac{1}{4}$	5	9 16	5/8	8.5	9.0	$1\frac{1}{4}$	58 34 78	9 16	500 %4 7]8	10.1	10.8
$\frac{1\frac{1}{2}}{1\frac{3}{4}}$	58 34 78	$\frac{21}{32}$	5/8 3/4 7/8	8.4	8.8	$1\frac{3}{8}$	$\frac{3}{4}$	$\frac{21}{32}$	3/4	9.9	10.5
$1\frac{3}{4}$	7/8	25 32 7 8	7/8	8.3	8.7	$1\frac{5}{8}$	7 8	2 5 3 2	78	9.8	10.4
2	1	78	1	8.2	8.6	1_{4}^{3}	1	$\frac{7}{8}$	1	9.7	10.3
$2\frac{1}{4}$	1호	31 32	1분	8.2	8 6	2	11/4	3132	1計	9.7	10.3
$2\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{3}{32}$	$1\frac{1}{4}$	8.3	8.7	$2\frac{1}{4}$	$1\frac{3}{8}$	13/82	114	9.8	10.4
$2rac{1}{2} \ 2rac{3}{4}$	$1\frac{3}{8}$	$1\frac{3}{16}$	$1\frac{3}{8}$	8.5	9.0	$2\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{16}$	$1\frac{3}{8}$	10.0	10.7
3	$1\frac{1}{2}$	$1\frac{5}{16}$	$1\frac{1}{2}$	8.7	9.3	2^{3}_{4}	$1\frac{5}{8}$	$1\frac{5}{16}$	$1\frac{1}{2}$	10.2	11.0
$3\frac{1}{4}$	$1\frac{5}{8}$	1_{16}^{7}	15/8	8.9	9.6	3	$1\frac{3}{4}$	1_{76}	15	10.4	11.3
31	$1\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{3}{4}$	9.2	9.9	$3\frac{1}{4}$	$1\frac{7}{8}$	$1\frac{9}{16}$	$1\frac{3}{4}$	10.7	11.6
$3\frac{3}{4}$	17/8	$1\frac{11}{16}$	$1\frac{7}{8}$	9.4	10.2	$3^{\frac{5}{7}}$	2	$1\frac{1}{1}\frac{1}{6}$	17/8	10.9	11.9
4	2	$1_{\frac{1}{1}\frac{3}{6}}$	2	9.6	10.5	$3\frac{1}{2}$	2	$1\frac{13}{16}$	2	11.1	12.2
4	$2\frac{1}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$	9.7	10.7	3_{4}^{3}	$2\frac{1}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$	11.4	12.6
$4\frac{1}{4}$	$2\frac{1}{4}$	2	$2\frac{1}{4}$	9.9	11.0	$3\frac{3}{4}$	$2\frac{1}{4}$	2	$2\frac{1}{4}$	11.6	12.9
$4\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	10.1	11.3	4	$2\frac{3}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	12.0	13.4
$4\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$			$4\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$		
$4\frac{3}{4}$	$2\frac{3}{4}$	$2^{7}_{\overline{1}\overline{6}}$	$2\frac{3}{4}$			$4\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{7}{16}$	$2\frac{3}{4}$		
5	3	$2\tfrac{1}{1}\tfrac{1}{6}$	3			$4\frac{3}{4}$	3	$2\frac{1}{16}$	3		
$5\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{15}{16}$	$3\frac{1}{4}$			5	$3\frac{1}{4}$	$2\frac{1}{1}\frac{5}{6}$	$3\frac{1}{4}$		
6	$3\frac{1}{2}$	3^8_1	$3\frac{1}{2}$		• •	$5\frac{1}{1}$	$3\frac{1}{2}$	3 ⁸	$3\frac{1}{2}$		

HOT-PRESSED SQUARE NUTS. FOR STEAMBOAT STIRRUP BOLTS.

Short Diameter.	Thickness.	Hole,	Size of Bolt.	Price per lb. Blank.	Price per lb. Tapped.
11/2	5 8	9 16	5.8	8.6	9.1
13/4	. <u>5</u>	16	<u>5</u> 8	8.6	9.1
134	34	$\frac{21}{32}$	$\frac{3}{4}$	8.6	9.0
2	3	$\frac{21}{32}$	$\frac{3}{4}$	8.6	9.0
2	7 B	25 33	7/8	8.6	9.0

For less than keg lots (200 pounds) of a size the following extras will be charged, viz.: At the rate of 20 cents per 100 pounds for 100 pounds or more.

At the rate of 50 cents per 100 pounds for less than 100 pounds.

Manufacturers' Standard Sizes

PLAIN COLD PUNCHED NUTS.

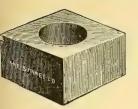


Fig. 91.

SQUARE AND HEXAGON.



Fig. 92.

		Sq	UARE.					H	EXAGON		
Short Diam.	Thick ne-s.	Hole.	Bolt.	Price per lo. B ank.	Price per lb. Tapped.	Short Diam.	Thick ness.	Hole.	Bolt.	Price per lb. Blank.	Price per 1b. Tapped.
Dia dia cia dia cia dia cia dia dia dia dia dia dia dia dia dia d	14 5 6 7 7 8 7 5 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	7.8 8 9.8 1.1 3 1.3 2.2 9.6 9.6 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	14 8 6 8 18 7 6 19 7 7 6 19 7 19 7 19 8 18 18 18 18 18 19 19 19 18 18 18 18 18 18 18 18 18 18 18 18 18	B ank. 13.8 12.3 10.8 9.3 9.0 8.8 8.5 8.5 8.2 8.5 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2	15.8 13.8 11.9 10.2 10.0 9.7 9.4 9.3 9.0 8.9 8.6 8.6 8.6 8.6 8.6 8.6 9.0 9.1 9.8 9.9 10.5 10.7	43 548 34 758 758 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14 15 37 15 12 12 12 15 15 15 15 15 15 15 15 15 15 15 15 15	7 2 2 3 1 3 2 3 7 7 7 7 1 2 2 5 6 6 6 6 6 6 6 1 2 1 2 1 2 1 2 1 2 1 2 5 6 6 1 3 1 3 7 5 5 5 1 5 7 5 7 5 5 5 1 5 1 5 1 5 1 5	기가 500 개발 가장 가장 제한	Blank. 21.0 17.5 13.8 11.5 11.0 10.6 10.6 10.6 10.1 10.1 10.1 10.1	Tapped. 23.5 19.5 15.4 12.8 12.5 12.0 12.0 11.5 11.3 10.8 10.7 10.7 10.3 10.3 10.7 10.7 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3
		• •				$\frac{3\frac{1}{2}}{2}$	2 2	118 118	$\frac{1_{\frac{1}{8}}}{2}$	11.5	12.5
						$\frac{3_{2}^{1}}{3_{2}^{1}}$	$\frac{z}{2\frac{1}{8}}$	1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2	12.0	13.1
• •						0.3	2€	116	~	19.0	10.1

For less than keg lots (200 pounds) of a size following extras will be charged, viz. a At the rate of 20 cents per 100 for 100 pounds or more.

At the rate of 50 cents per 100 pounds for less than 100 pounds.

SQUARE AND HEXACON HOT PRESSED NUTS. NARROW GAUGE SIZES.

		SQU	ARE.					HEXA	GON.		
Short Diam.	Thick- ness.	Hole.	Size of Bolt.	Price per lb. Blank.	Price per lb. Tapp'd	Short Diam.	Thick- ness.	Hole.	Size of Bolt.	Price per lb. Blank.	Price per ib. Tapp'd
1 1 1 1 2 0 0 0 0	7 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	50 7 0 6 1 1 1 4 5 0 0 6 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	0.00 m de 2 contra de 10.00 m de	20.0 13.7 12.3 10.7 10.0 9.0 8.7 8.6 8.4 8.3 8.3 8.3 8.4 8.5 8.8	24.5 15.7 13.8 11.8 10.9 9.7 9.3 9.1 8.8 8.7 8.7 8.7 8.8 9.0 9.4	1 1 1 1 1 2 2 2 2 2 2 2 2				14.0 13.0 11.2 10.5 10.4 10.1 9.9 9.8 9.8 9.9 10.0 10.3	15.6 14.3 12.2 11.4 11.1 10.7 10.5 10.4 10.5 10.7 11.1

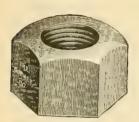


Fig. 93. Case Hardened Nut.

FINISHED CASE HARDENED AND SEMI-FINISHED

HEXACON NUTS.

The Thread and Outside of each Finished Case-Hardened Nut are made to an accurate gauge, and to the standard adopted by the U. S. Government.

The Semi-Finished Nuts are our regular Chamfered and Trimmed United States Standard Hexagon Nuts, tapped and faced true on the bottom.



Fig. 94. Semi-Finished Nut.

For Bolt.	Width.	Thickness.	Numbers of Threads.	Finished Case Hard- ened Nuts. Price each.	Semi-Fin- ished Nuts. Price each.	Semi-Fin- ished with Double Chamfer Price each.
11. 11. 11. 11. 11. 11. 11. 11. 11. 11.	1 1 1 1 1 2 2 2 2 2 3 3	- [4년] 6 전 [8] [2 년 2] 6 전 [8] 2 T T T T T T T T T T T T T T T T T T	20 18 16 14 13 or (12) 11 11 10 9 8 7 7 6 6 5 5 4 1 4	.06 07 .08 .09 .10 .12 .15 .17 .18 .22 .30 .35 .45 .55 .65 .80 1.00 1.50 2.00 3.50	.02 .02 .03\frac{1}{4} .03\frac{1}{4} .03\frac{3}{4} .04 .05 .05\frac{1}{2} .06\frac{1}{2} .07\frac{1}{2} .10 .13\frac{1}{2} .17 .24 .34 .44 .70 .90 .10 .150	$\begin{array}{c} .02\frac{1}{2} \\ .03 \\ .04 \\ .04\frac{1}{3} \\ .06 \\ .06\frac{1}{3} \\ .07\frac{3}{4} \\ .08\frac{1}{3} \\ .08\frac{1}{3} \\ .11\frac{1}{7} \\ .15\frac{1}{2} \\ .19\frac{1}{2} \\ .27 \\ .38 \\ .48 \\ .60 \\ .78 \\ 1.00 \\ 1.25 \\ 1.80 \\ \end{array}$

LIGHT STEEL "T" RAIL.

8	lbs.	to the	yard,						per	gross	ton,	\$
12	66	66	61				L		-66	Ğ	66	
16	66	66	64						6.6	66	66	
20	66	66	66.						66	66	66	
25	66	66	66						66	66	66	
30	66	66	66		,				66	66	66	
35	66	66	66						46	6.6	66	
40	6.6	66	• 6						66	44	66	

FLAT STEEL RAILS. PUNCHED AND COUNTERSUNK.

1½ 1½	to 2 by ½ to § inch, by § and 7-16 inch,	٠		٠	٠	•		•	per lb., \$
1	by $\frac{3}{8}$, 7-16 and $\frac{1}{2}$ inch, and $1\frac{1}{2}$ by $\frac{1}{4}$ inch, .								66
11	and $1\frac{1}{2}$ by $\frac{1}{4}$ inch,		•				•		. "

FOLLOWER PLATES.

		1 inch, Sawed to Length,	•		per lb., \$
6	X	$1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$ and $1\frac{1}{2}$ inch, Sawed to Length,			- 66
6	X	1 inch, Sawed and Punched,			66
6	x	$1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$ and $1\frac{1}{2}$, Sawed and Punched,			46
		1, Forged and Punched to Pattern, .			66
		$1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$ and $1\frac{1}{2}$, Forged and Punched to	Pattern,		66

PERFECTION TIE PLUC. (Actual Size.)

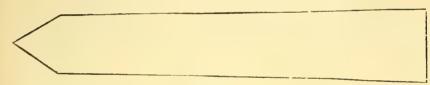


Fig. 95.

Made from Cedar, they will outlast any tie; and with a taper that makes them perfect as a plug, they add life, and permit respiking without injury to the ties, and cost less than any Railroad Company can make them for.

When desired they will be made from Elm, Pine, Basswood, or any of the ordi-

per 1,000, delivered on line of road, in lots of 100,000 or over.

nary woods suitable for the purpose. Cedar is especially recommended.

Price \$

THE PATENT VERONA NUT LOCK.



Size for Bolt, inches, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$. Price per 1,000, Fig. 97, $\frac{1}{8}$. \$5.00 5.50 6.65 7.25

Packed in boxes of 1,000 or 1,500 as desired.

For the Patent Improved Nut Lock with "Tail" add \$1 00 per 1,000 to each of above sizes.

RAILROAD TRACK BOLTS. ESTIMATED WEIGHT OF 1000 TRACK BOLTS.

tuiten Hoods and Ovel Necks as Per Cut

With	Button Heads and Oval	Necks as Let on	٠.
Dimensions of Bolts.	Size of Nuts.		OF 1000 Hexagon Nuts. Pounds.
$\begin{array}{c} \frac{1}{2} \times 2 \\ \frac{1}{2} \times 2\frac{1}{2} \\ \frac{9}{16} \times 2\frac{1}{4} \\ \frac{9}{16} \times 2\frac{1}{2} \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	260 293 365 388	244 277 337 360
5 x 25 5 x 25 5 x 3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	485 506 556	452 483 533
$\begin{array}{c} 3 \times 3\frac{1}{2} \\ 3 \times 4 \\ 3 \times 4\frac{1}{4} \end{array}$	U. S. Standard	818 880 899	788 840 870
$\begin{array}{c} \frac{7}{8} \times 3 \\ \frac{7}{8} \times 4 \\ \frac{7}{8} \times 4\frac{7}{8} \end{array}$ $\begin{array}{c} 1 \times 3\frac{1}{8} \end{array}$	46 46 16 46 16 66	1040 1334 1366 1350	982 1279 1310 1285
	Dimensions of Bolts. \[\frac{1}{2} \times 2 \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\ \frac{1}{2} \\ \frac{1}{2} \times 2 \\ \frac{1}{2} \\	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$



Fig. 98

Square Nut. In quoting price of Track Bolts, it will be understood, when not otherwise expressed, that the quotation refers to Track Bolts with Button Heads and Oval Necks as per cuts. In ordering Track Bolts give diameter of nut. Prices quoted on application.



Fig. 100.

Size Measured under Head.	Av. No per keg. 200 lbs.	No. to lay I mile track, 4 to tie. Ties 2 feet from centre to centre.	Rail used. Weight per yard.	Price per pound.
5} x 9-16 inches	360	5800 lbs.=29 kegs	45 and over	\$
5 x 9-16 "	400	5170 " =257	40 to 56	
43 x 3 "	530	$3900 \text{ "}=19\frac{\circ}{3}$ "	35 to 40	
4 x 1/3 "	600	3520 " =173-5 ") 004-0-	
3½ x ½ "	680	3110 '' =15 3-5 '·	- 30 to 35	
45 x 7.16 "	680	3110 " =15 3-5 "	1) 00 1 00	
4 x 7-16 "	840	2560 '' =12 4-5 ''	- 28 to 30	
3½ x 7-16 "	900	2350 " $=11\frac{3}{7}$ "	20 to 28	
$3\frac{1}{2} \times \frac{3}{8}$	1180	$1780 \text{ "} = 9\frac{7}{9} \text{ "}$)	
3 x 3 "	1370	1540 " $= 7\frac{8}{7}$ "	- 16 to 20	
$2\frac{1}{2} \times \frac{3}{2}$ "	1600	1320 " = 6 3-5 "	12	
2½ x 5-16 "	2160	1000 " = 5 "	8	

Reverse Points Extra.

					200		OILLED	11110	LCV				
				OST C	R	SHI	MN	11N	G S	PH	KES		
9,	8, 7 x	$\frac{9}{16}$ inch	es				5					per p	oound, \$
			5	TREE	TR	RAIL	_W	AY	SP	IKE	S.		
58	inch	square,	countersur	ik head								per r	ound, \$
	6.6	4.6	4.6	4.6								66	"
9 6 42 7 6 3 8 5 6 4 1 3 8 5 6 4	6.6	6 1	4.6	6.6								6.6	66
7	6.6	6.6	4.6	4.6	•	•				•	•	6.6	6.0
1 6	6.6	4.6	44	66	•	•		•		•		6.6	66
5	6.6	66	6.6	6.6	*	•	•	*	•		•		66
16	6.6	66	44	6.6	:							66	66
					BAR	GE	SF	IKI	ES.		-		
5 16	inch	square,	5 to 12 inc	hes long								per	pound, \$
- #	6.6											- 66	66 ()
		Si	orter tha	n 4 inches	$\frac{1}{4}$ cer	nt ex	tra.	Pric	ces qu	oted	on a	pplica	tion.

BOAT SPIKES.

									_				-				
3 i	n.	Square,	12 8	to to	24 16	inches	length,		•		٠		٠.	٠		,	per lb., \$
7	4.4	4.6	6	to	16	44	4.6			-		•	. '		•		4.6
7 16 3 8 16	4.4	4.6	6	to	12	6.6	4.6										44
3	6.6	4.4	4	to	12	4.6	66										6.6
5	66	6.6	4	to	-8	* *	4.6										66
1 4	4.4	4.6	4	to	-8	* *	"										46
1/4	6.6	4.4	3	to	34		6.6										64
*					•	$\frac{3}{8}$ and	$1 \frac{5}{16}$ sho	rter	tha	n 4	-incl	h, 1	cen	ext	ra.		

DOCK OR WHARF SPIKES. (DRIFT BOLTS.)

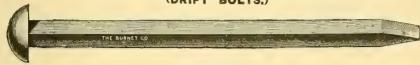


Fig. 101. Oval Head, Per lb., \$



Fig. 102. Countersunk Head. Per lb., \$



Fig. 103.

Headless, Per lb., \$



Fig. 104.

Per lb., \$ Nail Head, Ragged,

PRICES QUOTED ON APPLICATION. Points made wedge shape or conical as preferred. The above illustrations show the ordinary styles—shapes of heads are varied according to requirement of specifications.

Dock Spikes are made from round iron when so specified. Inquiries or orders should

describe the style wanted.

FISH PLATES AND BOLTS FOR ONE MILE SINGLE TRACK.

FOUR BOLTS PER JOINT.

		L	ength	of F	tail.				No. Fish Plates Required.	No. Bolts per Mile.	No. of Rails or Complete Joints.
24 feet,			•						808 844	1760 1688	440 422
26 "	٠.	•		. '		•		•	812 782	1624 1564	406 391
27 "	٠.	•				•	٠.	٠	754	1508	377
30 "		•							704	1408	352

SPLICE BARS.

Plain,		er lb., 💲	Angle,			,
	SPLICE	JOINTS	COMPLETE FOR	LIGHT	RAILS.	
8 and 10 lbs.,		each, \$	25 and 30 lbs	• 9		each, \$
12, 16 and 20 lbs.		" \$	35 and 40 lbs		•	• т ф

BOILER RIVETS.





Oval Head	Fig. 105.						F	ig. 106. Cone Head.
inch diameter	•							per pound, \$
inch diameter	and larger	•		•		•		- 44 - 44

			E	BRI	DG	E A	ND	C	AR	RI	VE7	rs.				
38	inch	diameter					•	•	•	•	٠	•	٠	per	pound,	\$
18	6.	66	•	•	•	•		•	•	•	:	•	•	66	6.6	
3				•	•		•		•	•				6.6	4.6	

3									*				6.6	6.6			
SI CALCO	64	4.6	and	larger				•		•	•	•	•••				
_	AVE	ERAGE	E NUE	MBER	OF	CONE	E-HEA	D BO	DILER	RI	VET:	SIN	100	PO	UNDS		
Dia			3 8	7 T 8		$\frac{1}{2}$		9		5		$\frac{11}{16}$		3		7	
	meter		8	J g		2		16		. 8		10		-78			
пеп	gths.	4	0.00	1.40	n	1092	,	944	6	65							
	3 7 8		965	1429						97		•		•		•	
	7/8		848	133		1027		846				4=0				• •	
	1		692	122		940		763		38		450	,	0~0		000	
	14	1	437	103	6	797		691		87		389		356		228	
	11	1	300	94	9	730	0	624		40		357		280		180	
	1 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1	1	200	90	0	698	3	553	3	90		325		262		169	
	24		100	78		608	3	511	3	60		297		243		156	í
	21		999	72		555		491	3	47		280		232		149)
	91		945	68		525		475	3	35		265		220	i	141	
	2 2 2 2 3 3 3 3 3 3 3 3 3		900	65		500		443		12		242		208		133	j
	34		828	59		460		411	2	90		224		197		127	1
	31		779	56		438		379	2	67		212		180	1	115	į
	31		743	53		418		352		48		201		169		108	
	38		715	51		395		341		41		192		160)	102	,
	4							326		30		184		158		99)
	41		•	•	•			298		10		171		146		94	ļ
	4½ 5		•	•	•	•	•	270		90		161		135		87	
	## #1		•	•	•	•	•	244		72		151		124		80	
	$\frac{5\frac{1}{2}}{6}$		•	•	•	•	•							115		74	
	0	•	•	•	•		•	223		57		140		110		14	

Iron Rivets in Bulk. PRICE PER POUND.

TANK RIVETS.

198

140

Any Style Head.

100

125

LENGTH OF RIVERS

					LENGT	H OF I	LIVETS.							
Size.	$\frac{1}{2}$	15 82	7 Te	13 32	38	11	5 16	9 3 2	1/4	7 3 2	_8 16	32	18	32
76, 38, 118 2 3 14 4 5 6 8 16 7 8 9 10	15 15\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	15 16\frac{1}{2} 16\frac{1}{2} 16\frac{1}{2} 16 16 17 17 17 17 17 18 18 19	$\begin{array}{c} 15 \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 17 \\ 17 \\ 17 \\ 17 \\ 18 \\ 18 \\ 18 \\ 19 \\ 20 \\ \end{array}$	$\begin{array}{c} 16\frac{1}{2} \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 17 \\ 17 \\ 18 \\ 18 \\ 18 \\ 18 \\ 19 \\ 20 \\ \end{array}$	$\begin{array}{c} \vdots \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 16\frac{1}{2} \\ 17 \\ 17 \\ 18 \\ 18 \\ 19 \\ 19 \\ 20 \\ 21 \\ \end{array}$	$\begin{array}{c} \cdot \cdot \cdot \\ \cdot \cdot \cdot $	17 18 18 18 19 20 20 20 21 23	18 18 18 20 20 20 20 21 23	18 18 18 18 20 21 21 21 22 23	19 19 21 22 22 22 23 24	19 19 19 21 23 23 23 24 25	20 22 23 24 24 25 27	22 23 25 25 26 29	23 24 26 26 27 30
	19	20	21	22	23	25	27	28	28	30	33	35	37	38
11	20	22	24	26	27	28	30	31	31	33	37	40	42	45
12	21	24	26	28	29	30	32	34	, 35	36	41	45	50	55
13 14	25 27	27	30	33	34	35	37	39	40	41	45	50	55	60
14	21	30	35	38	40	45	50	52	55	58	58	60	63	65
	Rimota	madaf	20 mg A20	0.011 am m	ulas Ale	- 7/5	4.4 - 31	1 12	***			-		

Rivets made from smaller wire than No. 14, all lengths, 70 cents per pound.

IRON RIVETS.

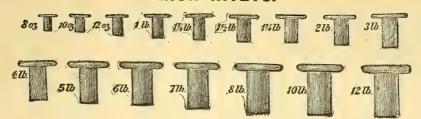


Fig. 107.

I	N PACE	AGES OF 1,000, PRICE	PER 1,000,	IN BULK, PRIOR	PER POUND.
S	ize.	Black.	Tinned.	Black.	Tinned.
8	OZ.	\$0.20	\$0 24	\$0.38	\$0.45
10	oz.	.22	.25	.34	.40
12	oz.	.24	.28	.31	.37
14	OZ.	.26	.30	.29	.35
1	lb.	.27	.33	.26	.32
11/4	(lb.	.29	.37	.23	.29
$1\frac{1}{2}$	lb.	.33	.42	.22	.28
	lb.	.37	.48	.21	.27
2	lb.	.42	.54	.20	.26
$2\frac{1}{2}$	lb.	.55	.69	.20	.26
3	lb.	.60	.78	.19	.25
31/2	lb.	.70	.81	.19	.25
4	lb.	.76	1.00	.18	.24
5	lb.	.90	1.20	.17	.23
6	lb.	1.08	1.44	.17	.23
7	lb.	1.26	1.68	.17	.23
8	lb.	1.44	1.92	.17	.23
9	lb.	1.53	2.07	.16	.22
10	lb.	1.75	2.35	.16	.22
12	lb.	1.98	2.70	.15½	.214
14	lb.	2.31	3.15	$.15\frac{1}{2}$	$.21\frac{1}{2}$
16	lb.	2.64	3.60	$.15\frac{1}{2}$	$.21\frac{1}{2}$
4 2					

Above prices are for common flat head regular size rivets only. Oval or countersunk ds or extra lengths 5 cents per 1,000 added to above prices.

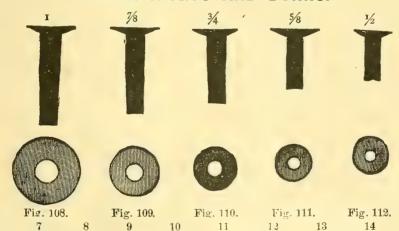
COPPER RIVETS AND BURRS.

VIII TIME

)

BULLOO

Nos.



Per 15. \$0.49 ,50 ,52 ,54 ,56 ,56 ,60 ,65 ,70

Belt and bose rivers are packed as follows: Rivers only in 4 lb. or 1 lb. paper boxes.

Eivets and burns mixed (equal quantities of each), in 1 lb. or ½ lb. paper boxes.

By rrs only in 1 to, boxes.

15

For rivets and burrs, uniform lengths, in $\frac{1}{2}$ lb. boxes, add 3 cents per pound to list For rivets and burrs, assorted $(\frac{3}{8}$ to $\frac{3}{4})$, in 1 lb. boxes, add 3 cents per pound to list. For rivets and burrs, assorted $(\frac{3}{8}$ to $\frac{3}{4})$, in $\frac{1}{2}$ lb. boxes, add 6 cents per lb. to list.



Fi	œ.	1	1	3	
T. 1	~ .	-		U	ß

									Li				11 ==			
		CO			_		. CRA				B. CR			ST SPE	CIAL DI	
S:ZE,	Price per	Weight	Procf Tens.	Breaking Strain. Tons.	Price per	Weight per Fathora	Proof Tons.	Breaking Strain	Price per	Weight per	Proof Tons.	Breaking Strain. Tons.	Price per Pound.	Weight per Fathom	Proof Tons.	Bram. Stram.
3-16	;	2	1-4	1-2		2 3-4	1-:	3 7-	8	2 3-4	4, 5-8	3				
1-4	1	4 1-	2 1-2	1		5	3	1 1-3		5	1	2				
5-16	, I	6 1-	2 1	3		7	1 1-4	2 1-3	2	7	1 1-5	3				
3-8		8 1-	2 1 3-4	3 1-2	Ì	9 1-8	2	4		9 1-2	2 1-4	4 1-2				
7-16		11	2 3-4	5 1-2		13	3	6		12	3 1-4	7				
1-2		14	3 1-8	6 1-4		15	3 1-2	7 3-4		15	4	8 1-2		15	4 1-2	9
9-16		STU	D LIN	lK		19	4 1-2	9		19	5	10		19	5 1-2	11
5-8		24	7	11		26	5 1-2	11		26	6	13	İ	26	7	13 1-2
11-16	I	29	S 1-4	14 ;		32	7	14		32	7 1-4	15		32	8 1-2	16 1-4
3-4		34	10 1-8	16		37	8	16		37	8 3-4	18		37	10	20
13-16		40	11 7-8	18		4:3	9 1-2	19		122	9 1-2	20		42	11 1-2	21
7-8		41	14	21		48	10	20		48	11	22		48	13	21
15-16		51	15 8-10	24		5.5	12	24		55	12 1-2	25		55	14 1-2	27
1		59	18	27		63	13	26		63	14	28 1-2		63	16	30 1-2
1 1-16		66	20 3-10	31		70	14	28		70	16	32 1-2	İ	70	17 1-2	34 1-2
1 1-8		75	22 3-4	35		79	16	30		79	18	36		79	20	30
1 3-16		82	25 3-8	38		38	13	136		88	20	40		88	23	41
1 1-4		91	28 1-8	43		98	21	42		98	22	44		98	25 1-2	47 1-8
1 5-16		103	31	47		105	23	46		105	24	48		105	27	52
1 3-8		113	34	51		118	25	50		118	26 1-2	54		118	29	57
1 7-16		120	37 1-8	56	1	27	27	54		127	29	58		127	31	61
1 1-2		132	40 5-10	59	1	.38	03	60		138	31	62		138	33 1-2	67
1 9-16		143	43 9-10	62	1	51	32	€4		151	33	66		151	35 1-4	71
1 5-8		156	47 5-10	67	1	60	35	70		160	36	72		160	38 1-2	77
1 11-16		162	51 1-4	72								(1			
1 3-4		175	55 1-8	78												
1 13-16		189	59 1 8	83												

MANUFACTURERS' AGENTS FOR

High Class Ship's Cables, Crane, Mining and Rigging Chains,
Chains for Differential Pulley Blocks, Special Crane
Chains, Steel and Iron Dredging Chains,
all sizes Machine Chains, etc.

Special Prices quoted on specifications for Brake Chain.

1 7-8

1 15-16

2 1-16

2 18

2 3-10

2 1-4

2 3-8

2 1-2

205

222

240 72

2.0

280

300

325

375

425

63 1-4

67 5-10

81 1-4

86 1-8

91 1-8

101 5-10 143

112 5-10 158

76 5-10 108

89

95

101

114

121

128

TOOL STEEL.

BLACK DIAMOND. Per lb. Base, \$

CRESCENT.
Per 1b. Base, \$

INI T TIVE

1

22200

L

SILVER STEEL. Per lb. Base, \$ Per lb. Base, \$

Per lb. Base, \$

CRESCENT SPECIAL Per lb. Base, \$

Extra per 1h

Annealed, ½c. per lb. extra.

ROUND, SQUARE AND OCTAGON.

Base sizes, 5 to 2 inches.

The following are extra prices charged above Base price	The	following	are extra	prices	charged	above	Base	price
---	-----	-----------	-----------	--------	---------	-------	------	-------

			Extra per lb.	1		I	Extra per lb.			
1 in	., -	-	18.0c	1 in.,	~	-	2.0c.	$2\frac{1}{8}$ to 3 in.,		1.0c.
32 66	-	-	10 0c.	3 "	-	_	1.0c.	3\frac{1}{8} to 4 "		1.5c.
16	-	-	5 0c.	16	-	-	1.0c.	4를 t · 5 "		2.0c.
1 14 4 32 16	•		3.0c.	1 "	-	-	0.5c.	5\frac{1}{8} to 6 "	-	2.5c.
32 66		-	3.0c.	16 66	-	-		6 to 7 "	_	3.0c.
16 66		_	2.0c.					75 to 8 "	-	3,5c.
					EPT A	TIC		, 0		

Base sizes \(\frac{1}{2} \) to 2 in. thick x \(\frac{9}{16} \) to 2 in. wide.

		Extra per lb.	l	Extr	a per lb.		Ex	tra per lb.					
1/8 X 1/6 -	-	20.0c.	ਜ਼ਿੰx 2ੀ to 7	-	1.0c.	§ to 2 in.	$x 2\frac{1}{8} to 7 i$	n. 1.0c.					
1 X 1 -	-	15.0c.	% x 7% to 8	-	2.0c.	를 to 1월	$x \frac{71}{8} to 8$	1.0c.					
1 X 16 -		8.0c.	1 x 15 to 3	•	z.0c.	17 to 2	x 7½ to 8	1.5c.					
$\frac{1}{8} \times \frac{3}{8}$ -	-	4.0c.	4 x % to 2	•		ર કે to 3	x 2\frac{1}{8} to 5	1.0c.					
g x is to g	-	3.0c.	$\frac{1}{4} \times 2\frac{1}{8} \text{ to } 7$	•	1.0c.	?⅓ to 3	x 5\frac{1}{8} to 8	1.5c.					
18 x 16 to 7		2.0c.	½ x 7⅓ to 8	-	2.0c.	3કે to 4	x 3\frac{1}{8} to 6	1.5c.					
1/8 x 1/8 to 8		3.0c.	16 x 3 to 8	-	1.5c.	3કે to 4	$x 6\frac{1}{8} to 8$	2.0c.					
* X 4 .	-	5.0c.	16 X 16 to 8	-	1.0c.	4\frac{1}{8} to 5	$\times 4\frac{1}{8}$ to 7	2.0c.					
3 X 18	-		8 x 7 to 8	-	1.0c.	4g to 5	x 7\frac{1}{8} to 8	2.5c					
3 X 3 .	-	3.0c.	76 x ½ to 8	-		5\frac{1}{8} to 6	$x 5\frac{1}{8} to 8$	2.5c					
3 x 16 to 5	-	2.0c.	1 x 1 to 8	-	1.0c.	6\frac{1}{8} to 7	x 6 to 7	3.0c					
$\frac{3}{16} \times \frac{11}{16} \text{ to } 2$	-	1.5c.	16 x 28 to 8	-	1.0c.	61 to 8	x78 to 8	3.5c					

Cutting to multiples or specified lengths, ½c. per lb. for over 24 in.; under, according to contract.

CLASSIFICATION OF SPRING STEEL. ROUND AND SQUARE.

§ to	1½ in.		_		-		-		_		_		_		_		40	Ex	Base.
½ to	ਮੌਰ in.	-		-		-		-		-		-		-		-		**	0.2c.
§ to	16 in. 16 in.		-		-		-		~		-		-		-		-		0.5c.
16	-			-		-		-		-				•		-		-	1.0c.
1	-		-		-		-		-		-		-		-		-		1.5c.

FLATS.

		1 1 1 1 1					ZZITA DEL ID.
1\(\frac{1}{4}\) to 4 in. x No.	4 gauge to	$\frac{1}{2}$ in, inclusive,)	-	-	-	Base.
1 to $1\frac{1}{8}$ in. x No.	1 gauge to	4 gauge "	•	-		•	- 0.2c.
1 to 3 in. x No.	5 gauge to	7 gauge " -		-	-	-	0.5c.
$\frac{3}{4}$ to $\frac{15}{16}$ in. x No.	1 gauge to	7 gauge "	-	•		-	- 0.5c.
$\frac{3}{8}$ to $\frac{11}{16}$ in. x No.	1 gauge to	7 gauge " -		-	-	-	1.0c.
$\frac{3}{4}$ to 3 in. x No.	8 gauge to	10 gauge "	-	-		•	- 1.0c.
$\frac{3}{4}$ to 3 in. x No.	11 gauge to	16 gauge " -		-	-	-	1,5c.

Cutting to lengths 24 inches and over, for per lb. extra; under 24 inches, according to agreement.

MUSHET STEEL.

Titanic, per lb., \$ Self-hardening, per lb., \$ Special, per lb., \$

Standard Classification of Extras for

MILD BESSEMER STEEL.

				Adopt	ed Nove	mher i	• ITN. 1085-1	899					
				ROUND								,	
8 4 . 9 :				ROUND	S AIN	0 3(, on	YES.				Per	100 lbs
f to 3 i	nches	•	• •	•		•	•	•	*	•	•	. B	ase.
5 to 11	6.6				00 lbs. extra.	, 91	to 91	inol	i.oa			Per 1	
to 11 to 15 to 15	64	•		20		37	to 3	i inci	ies .	•	•	. 50.50	extra
7 10	44			40		41	to 4	. 6				60	6.4
3	6.6			50	4.6	478	to 41 to 5	- 4				80	+6
16	"	•		60		1 05	ro 94					. 1.00	
$ \frac{\int_{4}^{6} and \frac{9}{82}}{\int_{52}^{7} a} $	4.6	•		70			to 6					. 1.50	
3 2	6 6	•		. 1.00		$\begin{vmatrix} 6\frac{1}{8} \\ 6\frac{5}{8} \end{vmatrix}$	to 6½ to 7¼			•	•	. 2.00	
10	T	Cor inte	· · · ·	e sizes, t								. 2.50	**
	•	. 01 11100									ea.		
				iot make						38.			
			FLAT	BARS	AND	HE	AVY	BA	NDS.			70	100 11
1 to 6 inch	es x 3/8 t	o 1 incl	ı .										100 lbs. ase.
				Per 10	00 lbs.							Per 10	
1 to 6 i	nches	x + and	5 inch	. \$0.20	extra.	1 1 6	i	nche			inch	. \$1.00	
16 to 15 11 to 15	4.6	x d and	5, 44	40	44	16 16 3 8		44	X. 4	and 5	4.6	. 1.20	6.6
	6.6	$x \frac{3}{8}$ to	16	50		11	to 6	6.6	X 4	and 15 to 116	6.6	. 1.50	6.6
16 and 5	66	x & and	5 44	70	6.6			4.6	x 11	to 116	. 6	10	
2	46	$\mathbf{x} \stackrel{\mathcal{I}}{\underset{\mathcal{S}}{=}} $ and $\mathbf{x} \stackrel{\mathcal{I}}{\underset{\mathcal{S}}{=}} $ and	16 "	90	64	$1\frac{3}{4}$	to 6	4.6	x 1	to $2\frac{3}{4}$	4.	30	
<u>1</u>	**	x 🕹 and	18 "	. 1.10		3 	to 6	14	х 3	to 4	6.6	.40	4.6
]	For inte	ermediat	e sizes, t	he nex	t high	iest e	extra	to be	charge	d.		
				IGHT E						J			
11 to 8 in	sh NTo	- P C				A110	DM	IADO	•			Per 100	lbs.
1½ to 6 inc	, X	10. 1	5, 9 and 5	inch			•		•			\$0.40 e	
1 40 1 7 4	-Alle	7 8	9 and $\frac{3}{16}$	inch			•	•	•			.60	
1 to 176 118 118 to 118 118		10. 1	1. 12 and	i k inch		•	•	•	•			.50	6.6
18 to 16 "	x "	7, 8,	9 and 3	inch			•		•	*	•	.70	64
18 and 18 "	- 1	10, 1.	i, iz and	1 & inch				•	•		•	.70 .80	4.
11 11 3 11 11 11 3 11	X	7, 8,	9 and 💤	- inch								1.00	66
16 4	A	10, 1.	1, 12 and	l inch								1.20	6.4
9 6 5 6	A		y and 3	inch		•	•		•			1.20	4.6
16 8	X "	7 8	L, 12 and 3	inch		•			۰			1.30	4.4
i	x "	10. 1	$\frac{1}{1}$ 12 and	d d inch	• •	•		0	•			1.30	1.6
7	X "	7, 8,	9 and 3	inch	•	•	•	•	•		•	1.50	4.4
7 16	X 44	10, 1	1, 12 and	i g inch		•		•	•	• •	•	1.80	6.6
10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	X "	7, 8,	9 and 🖧	inch			·					$\frac{2.10}{1.90}$	66
8	X "	10, 1	1, 12 and	1 g inch							:	2.40	6.6
	F	or inte	rmediate	e sizes, t	he next	high	est e	xtra	to be	charge	1.	~. 10	
					OVA					J			
Sizes, inc	hes.	7/8 to	11	3 to			5 to 1	1		1 4 0			
Extra per	100 lbs	s. \$0.4	40 [*]	.50	16	•	60 to 1	б		½ to %		8 to	7 16
	F	or inte	rmediate	e sizes, t	he next	high	est e	xtra ·	to be	charge	1	1.	00
				OVALS							4.4		
Sizes, inc	hes.	₹ to	2	$\frac{3}{4}$ to					MD2.				
Extra per		s. \$0.!		4.60	16	ŧ	to } .70	6		½ to 36		§ to	16
			rmediate	sizes, tl	ie next	hich	est e	stro i	to he	oboženci oboženi	,	1.:	10
FYT	RA EC	IP CI	ITTING	OPP	I A Post		550 6.	-ura I		cnargeo	L.		
Maskin	o outti	A CU	10.11 NG	ORDII	YARY	BAR	es t	0 8	SPEC	IFIC I	LENG	THS.	
METCHIL	e cutun	ı⊈. snec	uned len	orthe ab	OTTO 94	inaha	9	A					
Machin	e cuttin	eg, to s	pecified .	lengths,	13 to 2	4 incl	ies, T	o cer	it per	lb. exti	°a.		
less than 6	cent pe	er lb. o	n each si	lengths, ze extra	icss ti	тац Т	a Inc	nes,	accor	ding to	contr	act, but	not
	rin e on		04 *	1 11									

Hot sawing or shearing, 24 inch and longer bars, $\frac{1}{10}$ cent per lb. extra. Hot sawing or shearing, 12 to 24 inches, $\frac{2}{10}$ cent per lb. extra. Hot shearing, 6 to 12 inches, $\frac{3}{10}$ cent per pound extra.

NATIONAL BAR IRON WANUFACTURERS' SCHEDULE

OF

Minimum Extra Prices above the Base Bar Price, to be Charged for Extra Sizes of Iron.

Adopted March 16, 1899.

Base Price, PER LB., \$
ROUNDS AND SQUARES.
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
FLATS.
$\begin{array}{c} \frac{3}{8} \ \text{to} \ \frac{7}{16} \ \text{x} \ \frac{1}{4} \ \text{to} \ \frac{5}{16} \ \dots \ \frac{1}{16} \ \text{extra.} \\ \frac{1}{2} \ \text{to} \ \frac{9}{16} \ \text{x} \ \frac{1}{4} \ \text{to} \ \frac{5}{16} \ \dots \ \frac{1}{16} \ \text{extra.} \\ \frac{1}{2} \ \text{to} \ \frac{9}{16} \ \text{x} \ \frac{1}{4} \ \text{to} \ \frac{5}{16} \ \dots \ \frac{1}{16}
1c. per lb. extra.
OVAL IRON.
$\frac{3}{8}$ to $\frac{7}{16}$ $\frac{1}{10}$ extra. $\begin{vmatrix} \frac{1}{2}$ to $\frac{9}{16}$ x $\frac{3}{16}$ 1c. extra. $\begin{vmatrix} \frac{5}{8}$ to $\frac{1}{16}$ x $\frac{1}{8}$ $\frac{1}{10}$ extra. $\frac{1}{2}$ to $\frac{1}{16}$ $\frac{6}{10}$ " $\begin{vmatrix} \frac{3}{4}$ to $\frac{1}{16}$ $\frac{1}{10}$ " $\frac{1}{4}$ to $\frac{1}{16}$ $\frac{1}{10}$ extra.
HALF OVAL AND HALF ROUND.
$\frac{1}{2}$ $\frac{4}{10}$ extra. $ \frac{3}{8}$ to $\frac{7}{16}$ $\frac{2}{10}$ extra. $ \frac{5}{8}$ to $\frac{11}{15}$ $\frac{9}{10}$ extra. $ \frac{7}{8}$ to $\frac{2}{10}$ $\frac{5}{10}$ extra.

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COMPANY,

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Half ovals less than 1/4 their width in thickness, extra price.

LIGHT BANDS.

3	x Nos. 10, 11 and 12			. 1-6 e	xtra.	1	to $1\frac{3}{16}$	x Nos. 10, 11 and 12		• 10	extra.
8	3.7 A 4 . 3			1 5	0.6	11	to 1.3.	X NO. 9 10 32 4 4 4		a 3.0	
2 . 1	33 40 11 am d 10			1.4	4.6	1.4	to 4	X NOS. 10, 11 and 12		4 10	
16 to 1	\times No. 9 to $\frac{3}{16}$		•	• 10	4.4	11	to 1	× No. 9 to -3		4	6.6
7 to 3	\times No. 9 to $\frac{3}{16}$		•	· 110		14	10 4	- No. 10 11 and 19	•	* 10	1.6
9 to	$\frac{1}{2}$ x Nos. 10, 11 and 12 x No. 9 to $\frac{3}{16}$. 1c.	66	44	to 6	x No. 9 to 16.		• 10	••
18 10	3 - Nos 10 11 and 12	-		9	64	$6^{\hat{1}}$	to 63	x Nos. 10, 11 and 12		• 10	6.6
16 10	X NOS. 10, 11 and 18	•	•	10	66	61	to 63	x No. 9 to 3		7	6.6
11 to 2	X No. 9 to 16	•		• 10	44	177.4	tu Q	w Nos 10 11 and 12	-	10	4.4
13 to	x Nos. 10, 11 and 12			10			100	- No 0 to 3	•	9	6.6
18 to	$\frac{5}{6}$ x No. 9 to $\frac{3}{16}$			• 10		7	to 8	X No. 9 to 16	٠	• 10	

Bevel Edge Box Iron same as Light Bands of same sizes. Beaded Band Iron 1½ to 2 inches, ⁷0 extra. Sand Band Iron ½ c. above same sizes of Light Bands. Cutting to length ½ to ½ extra, according to length and size.

Common Iron is made only within the following ranges of sizes: Rounds and Squares, ½ to

1½ inches, inclusive. Flats, 1 to 3½ inches wide, inclusive, by ¼ to 1¼ inches thick.

WEIGHT OF ROUND AND SQUARE ROLLED IRON.

PER LINEAL FOOT. 1-16 TO 6 INCHES.

Size in Inches.	Rounds. Weight in lbs.	Squares. Weight in lbs.	Size in Inches.	Rounds. Weight in lbs.	Squares. Weight in Ibs.	Size in Inches.	Rounds. Weight in lbs.	Squares. Weight in lbs.
16 18 3	.010	.013 .053	$\begin{array}{c} 1\frac{5}{16} \\ 1\frac{3}{8} \end{array}$	4.573 5.019	6.390	58347 63 63 63	34.886 37.332	44.418 47.534
16 1 16	.094 .165 .261	.119 .211 .330	$1\frac{7}{16}$ $1\frac{1}{2}$ $1\frac{5}{8}$	5.486 5.972 7.010	7.604 8.926	$\frac{4}{4\frac{1}{8}}$	39.864 42.464 45.174	50.756 54.084 57.517
14 16 38 16	.373 .508 .663	.475 .647 .845	$egin{array}{c} 1rac{1}{2} \ 1rac{5}{8} \ 1rac{3}{8} \ 1rac{7}{8} \ 2 \ \end{array}$	8.128 9.333 10.616	$ \begin{array}{c c} 10.352 \\ 11.883 \\ 13.520 \end{array} $	$ \begin{array}{c c} 4\frac{1}{4} \\ 4\frac{3}{8} \\ 4\frac{1}{2} \end{array} $	47.952 50.815 53.760	61.055 64.700 68.448
122226 5816	.840 1.043	1.069 1.320	21 21 21 21 23 28	11.988 13.440	15.263 17.112	$\begin{array}{c c} 4\frac{5}{8} \\ 4\frac{3}{4} \\ 4\frac{7}{8} \end{array}$	56.788 59.900 63.094	72.305 76.264 80.333
3 1 1 3	1.255 1.493 1.752	1.597 1.901 2.231	28 212 258 247 28	$\begin{array}{c} 14.975 \\ 16.688 \\ 18.293 \end{array}$	$ \begin{array}{c} 19.066 \\ 21.120 \\ 23.292 \end{array} $	5 5	66.752 69.731	84.480 88.784
7 8 15 1	2.032 2.333 2.654	$egin{array}{ccc} 2.588 \ 2.971 \ 3.380 \ \end{array}$	$2\frac{3}{4}$ $2\frac{7}{8}$ 3	20.076 21.944 23.888	25.560 27.939 30.416	5\frac{1}{4} 5\frac{3}{2} 5\frac{1}{2}	73.172 76.700 $80,304$	93.168 97.657 102.240
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.997 3.360	3.816 4.278	31 38 34 338	25.926 28 040 30.240	33.010 35.704 38.503	558 534 578	84.001 87.776 91,634	106.953 111.756 116.671
1136 114	$\begin{array}{ c c c }\hline & 3.744 \\ & 4.172 \\ \hline \end{array}$	5.280	31/2	32.512	41.408	6	95.552	121.664

WEICHT OF ROUND AND SQUARE STEEL.

PER LINEAL FOOT. 1-16 TO 12 INCHES.

Size	Rounds.	Squares.	Size	Rounds.	Squares.	Size	Rounds.	Squares.
in	Weight	Weight	in	Weight	Weight	in	Weight	Weight
Inches.	in lbs.	in lbs.	Inches.	in lbs.	in lbs.	Inches	in lbs.	in lbs.
1 18	0.010	0,013	23/8	15,07	19 19	$\frac{47}{8}$	63.52	80.87
	0.041	0.530	2 1	16.70	21.26	5	66.82	85.08
8 8	0.094	0.120	25	18,41	23.44		70.20	89.38
1°	0.167	0.213	23	20.21	25 73	54	73.67	93.80
-4∞° -440000-4600000000000000000000000000000	0.375	0.478	212258 2258 2258 2258 2258 2258 2258 225	22.09	28.12	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	77 21	98.31
8	0.668	0.851	3	24.05	30.62	51	80 85	102.94
2 5	1.044	1.329		26.10	33.23	55	84 56	107.67
8	1,503	1.914	31/4 31/4 33/8	28.23	35.94	53	88 37	112.52
4	2.046	2,605	23	30 43	38.75	57	92.25	
18		3.402	21	32.74		6		117.45
11	2.672		20 20 20 20 20 20 20 20 20 20 20 20 20 2		41.68		96.22	122.51
18	3.382	4 306	98 93	35.12	44 71	$6\frac{1}{4}$ $6\frac{1}{2}$ $6\frac{3}{4}$	104.41	132.94
14	4.175	5.316	34	37.57	47.84	65	112.92	143.78
18	5.052	6.433		40.13	51.09	$6\frac{3}{4}$	121.78	155 05
15	6.012	7.655	4	42.77	54.45	1	130 9 9	166.75
1 §	7.056	8.984	$4\frac{1}{8}$	45,47	57.90	$7\frac{1}{2}$	150.34	191.42
1월	8.183	10.419	$4\frac{1}{4}$	48.28	61,47	8	171,04	217.78
148448 148448 148448 14848 148	9.394	11.916	$4\frac{1}{4}$ $4\frac{3}{8}$	51,15	65,13	$8\frac{1}{2}$	193.10	245.86
	10.69	13 61	39	54.83	69.81	9	216.49	275.64
$2\frac{1}{8}$	12.06	15.36	$4\frac{5}{8}$	57.17	72.79	10	267.16	340.29
24	13.52	17 22	43	60.30	76.78	12	384.77	487.91

WEIGHT OF FLAT IRON PER LINEAL FOOT.

Size.	18	1/4	, 5 , 1 6	3]00	7 16	1/2	<u>5</u> 8	34	7/8	1	$1\frac{1}{4}$	11/2
1015 00 00 141-190	.211 .264	.422 .528	$.528 \\ .660$.634	.738	.845	1.056	1.265	1.477	1.690	2.112	2.535
8 3	.204 $.316$.633	.792	$\begin{array}{c} .792 \\ .950 \end{array}$		1.056 1.265	1.320 1.584	1.584 1.901	1.846	2.112	2.640	
7	.369	.738		1.108		1.477	1.846	$\frac{1.901}{2.217}$	2.217 2.588	$\begin{vmatrix} 2.534 \\ 2.956 \end{vmatrix}$	3.168 3.696	$3.802 \\ 4.435$
18	.422		1.056	1.267	1.478	1.690	2.112	2.534	2.956	3.380		5.069
	.475			1.425		1.901	2.375	2.850	3.326	3.802	4.752	5.703
148-448-88-168-168-168-168-168-168-168-168-168		1.056	1.320	1.584	1.848	2.112	2.640	3.168	3.696	4.224		6.337
$1\frac{3}{8}$				1.742		2 325	2.904	3.484	4.065	4.646	5.808	6.970
$1\frac{1}{2}$.633	1.266	1.584	1.900	2.217	2.535	3.168	3.802	4.435	5.069	6.337	7.604
$1\frac{5}{8}$.686	1.372	1.716	2.059	2.402	2.746	3.432	4.119	4.805	5.492		8.237
13	.739	1.479	1.848	2,218	2.589	2.957	3.696	4.435	5.178	5.914		
$\frac{14}{8}$.792	1.584	1.980	2,376	2.772	3 168			5.544	6 336	7.921	9.505
2 21	.845	1.089	2,112	2,534	2.957	3.379				6.758		10.138
2 18 14 18 12 18 1	050	1.795	0.276	2.693	3.326	3.591	4.488					10.772
24 93					3.511	3.802 4.013						11.406 12.038
% <u>₹</u> 91	1.003	2.112	2.640	3.009	3. 696	4 224					10.032	12.672
25 25	1 109	2.218	2.779	3 327	3.879	4 436						13.308
$\frac{^{8}}{2^{\frac{3}{4}}}$	1.162	2.323	$\frac{1}{2.904}$	3.485	4.066	4.647						13.940
$2\overline{7}$					4.249							14.574
3					4.435							15.208
314 312 334					4.805							16.475
$3\frac{1}{2}$	1.479	2.957	3.696	4.436	5.175	5.914	7.393	8.871	10.350	11.828	14.785	17.742
$3\frac{3}{4}$					5.544							19.009
4				5.069		6.759						20.277
41	1.795	3.591	4.488	5.386	6.282	7.181						21.544
$\frac{4\frac{1}{2}}{4\frac{3}{4}}$	1.900	3.802	4.752	5.703	6.653	7.604						22.812
44					7.020	8.026						24.079
5					7.392							25.346
514 512 534					7.758							26.613
0 2					$8.132 \\ 8.496$							27.881 29.148
0章 6				7.604								30.416
0	4.000	0.010	0,001	1.004	0.011	10.130	12.074	10.200	11.142	20.210	20.040	00.410

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SCREEN BARS. (STEEL.)

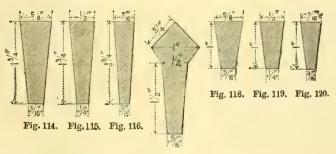


Fig. 117.

Prices quoted on application and receipt of Specifications.

WEIGHTS OF FLAT ROLLED STEEL.

PER LINEAL FOOT.

For thicknesses from 3-16 in. to 2 in.

Thick-				1	i .	1				}	1						
ness in inches.	1	1%	11/2	1¾	2	21/4	21/2	234	3	31/4	3½	3%	4	41/2	5	5 1/2	6
3-16 14	.638 .850	.797 1.06	.957 1.28	1.11 1.49	1.28 1.70	1.44 1.91	1.59 2.12		1.91 2.55	2.07 2.76	2.23 2.98	2.39 3.19	$\frac{2.55}{3.40}$	2.87 3.83		3.51 4.67	3.83 5.10
5-16 ^{3/8} 7-16 ^{3/2}	1.06 1.28 1.49 1.70	1.33 1.59 1.86 2.12	1.59 1.92 2.23 2.55	1.86 2.23 2.60 2.98	2.12 2.55 2.98 3.40	2.39 2.87 3.35 3.83	2.65 3.19 3.72 4.25		3.19 3.83 4.46 5.10	3.45 4.15 4.83 5.53	3.72 4.47 5.20 5.95	3.99 4.78 5.58 6.38	4.25 5.10 5.95 6.80	4.78 5.74 6.70 7.65	6.38 7.44	7.02	7.65 8.98
9-16 5% 11-16	1.92 2.12 2.34 2.55	2.39 2.65 2.92 3.19	2.87 3.19 3.51 3.83	3.35 3.72 4.09 4.47	3.83 4.25 4.67 5.10	4.30 4.78 5.26 5.75	4.78 5.31 5.84 6 38		5.74 6.38 7.02 7.65	6.22 6.91 7.60 8.29		7 17 7.97 8.76 9.57	7.65 8.50 9.35 10.20	10.52	10.63 11.69		12.75 14.03
13-16 76 15-16	2.76 2.98 3.19 3.40	3.45 3.72 3.99 4.25	4.14 4.47 4.78 5.10	4.84 5.20 5.58 5.95	5.53 5.95 6.38 6.80	6.21 6.69 7.18 7.65	6.90 7.44 7.97 8.50	7.60 8.18 8.77 9.35	8.29 8.93 9.57 10.20	8.98 9.67 10.36 11.05	9.67 10.41 11.16 11.90	11.16		13.39 14.34	14.87 15.94	16.36 17.53	17.85 19.13
1 1-16 1 ½ 1 3-16 1 ¼	3.61 3.83 4.04 4.25	4.52 4.78 5.05 5.31	5.42 5.74 6.06 6.38	6.32 6.70 7.07 7. 44	7.22 7.65 8.08 8.50	8 13 8.61 9.09 9.57	9.03 9.57 10.10 10.63	9.93 10.52 11.11 11.69	10.84 11.48 12.12 12.75	11.74 12.43 13.12 13.81	12.65 13.39 14.13 14.87	13.55 14.34 15.14 15.94	14.45 15.30 16.15 17.00	17.22 18.17	19.13 20.19	$\frac{21.04}{22.21}$	22.95 24.23
1 5-16 1 38 1 7-16 1 ½	4.46 4.67 4.89 5.10	5.58 5.84 6.11 6.38	6.69 7.02 7.34 7.65	7.81 8.18 8.56 8.93	8.93 9.35 9.78 10.20	10.04 10.52 11.00 11.48			13.39 14.03 14.66 15.30	14.50 15.20 15.88 16.58	15.62 16.36 17.10 17.85	16.74 17.53 18.33 19.13	17.85 18.70 19.55 20.40		23.38 24.44	25.71 26.88	28.05 29.33
1 9-16 1 5% 1 11-16 1 ¾	5.32 5.52 5.74 5.95	6.64 6.90 7.70 7.44	7.97 8.29 8.61 8.93	9.30 9.67 10.04 10.42	10.63 11.05 11.47 11.90	11.95 12.43 12.91 13.40	13.28 13.81 14.34 14.88	14.61 15.19 15.78 16.37	15.94 16.58 17.22 17.85	17.27 17.96 18.65 19.34	18.60 19 34 20.08 20.83	19.92 20.72 21.51 22.32	21.25 22.10 22.95 23.80	24.87 25.82	27.63 28.69	30.39 31.55	33.15 34.43
1 13-16 1 76 1 15-16 2	6.16 6.38 6.59 6.80	7.70 7.97 8.24 8.50	9.24 9.57 9.88 10.20	10.79 11.15 11.53 11.90	12.33 12.75 13.18 13.60	13.86 14.34 14.83 15.30	15.94 16.47	16.95 17.53 18.12 18.70	18.49 19.13 19.77 20.40	20.03 20.72 21.41 22.10	21.57 22.31 23.06 2 3.80	23.11 23.91 24.70 25 50	24.65 25.50 26.35 27.20	28.69 29.64	$\frac{30.87}{32.94}$	35.06 36.23	38.25 39 53

CALVANIZED SHEETS PRICE LIST.

Gauge,				10	11	12	13	14	15	16	17	18	19	20
Weight, per sq ft., in oz., .				$92\frac{1}{2}$	$82\frac{1}{2}$	$72\frac{1}{2}$	$62\frac{1}{2}$	$52\frac{1}{2}$	471	421	381	341	301	261
List price, per lb., .				12	12	12	12	12	12	$12^{}$	13	13	13	13
Gauge,					21	22	23	24	25	26	27	28	29	30
Weight, per sq. ft., in oz.,	•		٠		$\frac{24\frac{1}{2}}{10}$	$22\frac{1}{2}$	$20\frac{1}{2}$	$18\frac{1}{2}$	$16\frac{1}{2}$	143	$13\frac{1}{2}$	$12\frac{1}{2}$	$11\frac{1}{2}$	$10\frac{1}{2}$
List price, per lb.,		•		•	13	14	14	14	15	15	16	17	19	21

ADDITIONAL PRICES ON EXTRA SIZES.

EXTRA WIDTHS.

No. 19 and lighter:			Nos. 16, 17 and 18:		P	er lb.
Less than 24 in. wide, per lb.,	,	1 cent	Over 36 in to 40 in., inclusive.		1	cent
Over 32 in. to 36 in., inclusive,		1 "	Over 40 in. to 44 in., inclusive, .	•		44
Over 36 in. to 40 in., inclusive.		2 "	Over 44 in. to 48 in., inclusive.			4.6
Over 40 in. to 44 in., inclusive,		3 "	100 100 100 100 100 100 100 100 100 100	•	~2	
Over 44 in, to 48 in., inclusive.		5 "				

EXTRA LENGTHS.

One-half cent per lb. additional for Pattern Sheets, i. e., for all iron of which every sheet in each bundle is required to be of exact length specified, or where iron is ordered in sheets, all of which are required to be of the same length. But iron of any length, in bundles, in which one or two sheets of the same number and width, but shorter than the full length ordered, are allowed to be put up in each bundle, will be considered ordinary length, or merchant iron, and will not be subject to any extra for length.

UNITED STATES STANDARD WEIGHT OF CAUCES FOR IRON AND STEEL PLATES AND SHEETS. Established by Congress March 3, 1893. Adopted by the Association of Iron and Steel Sheet Manufacturers, July 1, 1893.

			Steel Sheet Manufactu	rers, July 1, 1893.	
	Weight	Weight	Approxi-	Approxi-	
NT	per Square Foot	per Square	mate	mate	Price
No. of	in Pounds	Foot in Ounces	Thickness in Frac-	Thickness in Decimal	per
Gauge.	Avoirdu-	Avoirdu-	tions of	Parts of	Pound
	pois.	pois.	an Inch.	an Inch.	
0000000	20.00	320	1-2	.5	
000000	18.75	300	15-32	.46875	
00000	17.50	280	7-16	.4375	
0000	16.25	260	13-32	.40625	
000	15.	240	3-8	.875	
00	13.75	220	11-32	.34375	
0	12.50	200	5-16	.3125	
1	11.25	180	9-32	.28125	
	10.625	170	17-64	.265625	
2 3	10.	160	1-4	,25	
4	9.375	150	15-64	.234375	
4 5	8.75	140	7-32	.21875	
6	8.125	130	13-64	.203125	
6 7	7.5	120	3-16	,1875	
8	6.875	110	11-64	.171875	
9	6.25	100	5-32		
10	5.625	90	9-64	.15625	
11	5.020	80		.140625	
12			1-8	.125	
	4.375	70	7-64	.109375	
13	3.75	60	3-32	.09375	
14	3.125	50	5-64	.078125	
15	2.8125	45	9 128	.0703125	
16	2.5	40	1-16	.0625	
17	2.25	36	9-160	.05625	
18	2.	32	1-20	05	
19	1.75	28	7-160	.04375	
20	1.50	24	3-80	.0375	
21	1.375	22	11-320	.034375	
22	1.25	20	1-32	.03125	
23	1.125	18	9-320	.028125	
24	1.	16	1-40	.025	
25	.875	14	7-320	.021875	
26	.75	12	3-160	.01875	
27	.6875	11	11-640	.0171875	
28	.625	10	1-64	.015625	
29	.5625	9	9-640	.0140625	
30	.5	8	1-80	.0125	

EXTREME SIZES AND CAUCES WE CAN ROLL PLATES AND SHEETS.

PLATES.

		WIDTH.										
THICKNESS.	64	62	60	58	56	54	50	48	42	36	30	24
1 2	114 120 126 132 132	120 120 126 144 168	120 132 156 168 240	126 138 156 180 240	132 144 168 192 288	138 156 180 216 288	144 156 192 228 288	156 168 200 240 288	168 192 216 264 288	192 228 264 288 288	240 252 288 288 288	288 288 288 288 288
13 Nos. 8 and 9 Nos. 10 and 11 No 12	132 120 120 120	168 144 132 120	240 168 144 144	240 180 156 144	288 192 168 156	288 240 200 180	288 252 240 180	288 252 240 192	288 288 264 220	288 288 288 240	288 288 288 288 288	288 288 288 288 288

SHEETS.

	01125101													
	WIDTH.						WIDTH.							
GAUGE.	50	48	44	40	36	30	24	GAUGE.	48	44	40	36	30	24
13 and 14.	144	156	156	180	180	192	216	23 and 24.	120	120	144	141	144	144
15 to 17	144	144	144	156	168	156		25 and 26.	96	96	96	120	144	120
18 and 19.	144	144	144	144	144	144		27 and 28.			96	120	120	120
20 to 22	120	120	120	144	144	144	144							

CORRUCATED SHEETS.

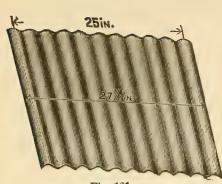


Fig. 121.

The above shows the style of our 2½ inch
Corrugated Sheets. 11 Corrugations.

BLACK, GALVANIZED AND KALAMEINED, PLAIN OR PAINTED.

Width of sheet after corrugating, $27\frac{1}{2}$ inches. Covering surface, allowing one corrugation for lap, 25 inches.

Size of corrugation from crown to crown, 2½ inches.

Depth of corrugation, § inch.

Standard widths and lengths, $27\frac{1}{2} \times 96$ inches.

Extreme widths and lengths, $44\frac{1}{2}$ x 120 inches.

BLACK SHEETS.

U. S. Standard Gauge,	Approximate Weight per Sq. Foot Flat.	Approximate Weight per Sq. Corrugated.	Price per Pound.
No. 16	2.50	273 lb.	\$
No. 18	2.	218	
No. 20	1.50	164	
No. 22	1.25	137	
No. 24	1.00	109	
No. 26	.75	82	
No. 27	.6875	75	
No. 28	.625	68	
	GALVANI	ZED SHEETS.	
No. 16	2.66	290	\$
No. 18	2.16	236	
No. 20	1.66	181	
No. 22	1.41	155	
No. 24	1.16	127	
No. 26	.91	99	
No. 27	.85	92	
No. 28	.78	· 85	

BOILER PLATES.

Flange, per pound, \$...... Fire-box Flange, per pound, \$......

PRICES QUOTED UPON RECEIPT OF SPECIFICATIONS.

We furnish only the VERY BEST PLATES and guarantee to Specifications.

EXTRA FOR FLANGED HEADS.

12 to 6	ou inches	, inclusive	diameter,	eacn,	
61 to 7	0 inche	, inclusive	diameter,	each,	
71 to 7	5 inches	, inclusive	diameter,	each,	
76 to 8	0 inches	inclusive	diameter,	each,	
			diameter,		
86 to 9	0 inches	inclusive	diameter.	each.	

When ordering Boiler Plates, designate Quality or Tensile Strength required.
PRICES QUOTED UPON RECEIPT OF SPECIFICATIONS.

ESTIMATED WEIGHT PER SHEET.

W. DEWEES WOOD CO.'S

PATENT PLANISHED LOCOMOTIVE JACKET IRON.

```
NO. 18,=1 20th inch= .05.
28 \times 48 = 17\frac{1}{4} to 18 lbs.
                                                                      30 \times 48 = 18\frac{1}{2} to 19
28 x 56=201 to 21
                                                                      30 x 56=211 to 22
28 \times 60 = 21\frac{1}{2} to 21\frac{3}{4}
                                                                      30 x 60=23 to 233
28 x 72=26 to 27
                                                                      30 \times 72 = 27\frac{1}{2} to 28\frac{1}{4}
28 x 84=30\frac{1}{2} to 31\frac{1}{2}
                                                                      30 x 84=321 to 33
                              NO.
                                        19 =7-160ths inch= .04375.
28 \times 48 = 15\frac{3}{4} to 16\frac{1}{4} lbs.
                                                                      30 x 48=163 to 171 lbs.
28 \times 56 = 18\frac{1}{4} to 18\frac{3}{4}
                                                                      50 \times 56 = 19\frac{1}{2} to 20
28 \times 60 = 19\frac{1}{5} to 20
                                                                      30 x 60=21 to 211
28 x 72=231 to 24
                                                                      30 \times 72 = 25\frac{1}{4} to 25\frac{3}{4}
28 x 84=27½ to 28
                                                                      30 \times 84 = 29\frac{1}{2} to 30
                               NO. 20.=3-80ths inch= .0375.
28 \times 48 = 13 to 13\frac{1}{2} lbs.
                                                                      30 \times 48 = 14 to 14\frac{3}{4} lbs.
28 \times 56 = 14\frac{3}{7} to 15\frac{1}{7} "
                                                                      30 \times 56 = 16\frac{1}{4} \text{ to } 16\frac{3}{4} "
28 \times 60 = 16\frac{1}{4} to 16\frac{3}{4}
                                                                      30 \times 60 = 171 \text{ to } 173
28 x 72=181 to 19
                                                                      30 \times 7z = 20\frac{3}{4} to 21\frac{1}{4}
28 \times 84 = 22\frac{3}{4} to 23\frac{1}{4}
                                                                      30 x 84=241 to 25
                            NO. 21,-11-320ths inch= 034375.
28 \times 48 = 12 to 12\frac{1}{2} lbs.
                                                                      30 \times 48 = 13 to 13\frac{1}{2} lbs.
28 x 56=14 to 141 "
                                                                      30 \times 56 = 15 to 15\frac{1}{2}
28 x 60=4143 to 151 "
                                                                      30 \times 60 = 16\frac{1}{4} to 16\frac{3}{4}
28 x 72=17\frac{3}{4} to 18\frac{1}{4}
                                                                      30 x 72=19\frac{1}{2} to 19\frac{3}{4}
28 x 84=203 to 211 "
                                                                     30 x 84=21\frac{1}{2} to 23
                              NO. 22.=1-32nd inch= .03125.
28 \times 48 = 10\frac{1}{2} to 10\frac{3}{4} lbs.
                                                                      30 \times 48 = 11\frac{1}{4} to 11\frac{3}{4} lbs.
28 x 56=12\frac{1}{4} to 12\frac{1}{3}
                                                                     30 \times 56 = 13\frac{1}{4} to 13\frac{3}{4} "
28 x 60=13½ to 13½
                                                                     30 \times 60 = 14\frac{1}{4} to 14\frac{3}{4} ...
28 x 72=16 to 161
                                                                     30 \times 72 = 17 to 17\frac{3}{7}
28 x 84=18\frac{3}{2} to 19
                                                                     30 \times 84 = 193 \text{ to } 201
                             NO. 23.=9-320ths inch= .028125.
28 x 48=10 to 10½ lbs.
                                                                     30 \times 48 = 10^{3} \text{ to } 11^{\frac{1}{4}} \text{ lbs}
28 x 56=11½ to 11½ "
                                                                     30 x 56=12\frac{1}{2} to 13
28 \times 60 = 12\frac{1}{2} \text{ to } 12\frac{3}{4} "
                                                                     30 x 60=13½ to 14
28 \times 72 = 15\frac{1}{4} to 15\frac{1}{5}
                                                                     30 \times 72 = 16\frac{1}{4} to 16\frac{3}{4}
28 x 84=17½ to 17½
                                                                     30 \times 84 = 19 to 19\frac{1}{2}
                                NO. 24.=1-40th inch= .025.
28 \times 48 = 8\frac{3}{4} to 9 lbs.
                                                                     30 \times 48 = 9\frac{1}{4} to 9\frac{3}{4} lbs.
                                                                     30 \times 56 = 11\frac{1}{4} to 11\frac{3}{4} "
28 x 56=101 to 101 "
28 x 60=103 to 111
                                                                     30 \times 60 = 12 to 12\frac{1}{2} "
28 \times 72 = 13\frac{1}{4} to 13\frac{1}{2} "
                                                                     30 \times 72 = 14 to 14\frac{3}{4} "
28 x 84=151 to 16
                                                                     30 \times 84 = 16\frac{1}{4} \text{ to } 16\frac{3}{4} "
```

1

JACKET STEEL PLATES .- FOR PAINTED JACKETS .- Same size as Planished.

Price Planished Jacket Iron, per pound, \$ Price, Steel Plates, per pound, \$
Average weight per pack, 245 to 250 lbs.

WEDGE-SHAPED RAILROAD TRACK TORPEDOES.

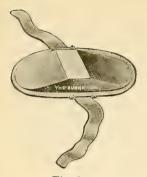


Fig. 122. Nos. 7 2 and 3 Lead Strap.

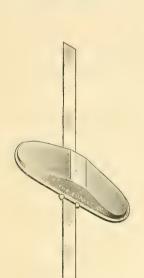


Fig. 123. No. 4, 8 in. Tin Strap.

THE WEDGE-SHAPED TORPEDO is the most practical Torpedo ever brought out. The narrow edge presented to the wheel prevents its being knocked or shoved from the rail. In the winter when the snow shoves in front of the wheel, the thin edge of the Wedge-shaped Torpedo allows the snow to pass over, which is not the case with any other shape. The construction of the Wedge-shaped Torpedo is such that it will not explode when run over by a hand car. This feature cannot be found in any other Torpedo and is a sufficient recommend in itself, for it is very important to know that the protection is not spoiled by the shifting of track men.

The Wedge-shaped Torpedo is hermetically sealed water proof, will keep for a life time in any climate, and is always to be relied upon. Some of these Torpedoes were out on the ground in all kinds of weather for more than a year, and when tried proved to be as loud and as strong as ever.

The Wedge-shaped Torpedoes are the standard on more than one hundred of the leading roads, foreign and domestic.

We can make any style, shape or size of Torpedo or Fusee your road may require as a standard. When we say a standard we mean an article that you can us, and buy over and over again and it is always just the same and your faith in its reliability to do just what you require of it is never shaken. Thus you are for ever relieved from worry and the everlasting testing to see if you are getting what you ordered.



R. R. W. S. 6 in. Heavy Lead Strap.

ALL OF OUR TORPEDOES ARE PUT TOGETHER WITH WATER-PROOF CEMENT.

PRICES PER CROSS.

No.	1	Wedge-sl	aped	8 i	inch	Heavy	Lead	Strap						\$3.25
6.6	9.	**	66	6	66	6.6	6.6		•	•	٠	•	•	
		"							•		•			2.75
4.6	.1	. 6	66	0	44	Tigitt			•	•			•	2.25
	,			-		Tin								2.25
		R. "		6	**	Heavy	Lead	6.6						1.75
66	X	X Oblong	66	6		46	6.6	4.6			•	•	•	
		" "			66	Light	6.6	66	•	•	•	•	•	2.00
				U		Tugur		•••	•				,	1.50

RAILROAD TRACK TORPEDOES.

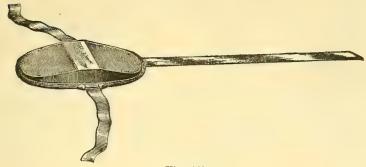


Fig. 125.

No. 6 Wedge-shape Torpedo Three-strap Fastening, Patented.

No. 6 R. R. and Wedge-shape Three-strap Fastening has an eight-inch leader which extends from the torpedo along the rail. This leader being caught by the approaching wheel makes it impossible for the torpedo to get away. It is Safe and Sure and is standard on several railroads.

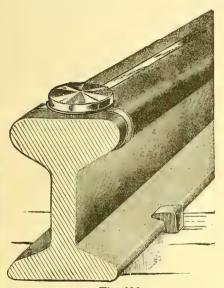


Fig. 126.

Shows No. 6 Round-shape Three-strap
IN Place on Rail.

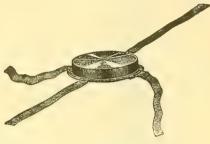


Fig. 127.
No. 7 R. R. Torpedo, Four-strap Fastening, Patented.

No. 7 Four-strap Fastening is somewhat more effective than the No. 6 Fastening, and is very heavy. Is used largely in Canada as well as many other roads.



PRICES	PER	CIKU	33.		
No. 7 R. R. 4-strap					\$4.50
					3.00
0 -				•	2.50
					1.50

All Torpedoes are put together with water-proof



Fig. 128.

Common R. R. Torpedo

Reliable, economical
and loud in report.
Waterproof.

RAILROAD TRACK

SPRING CLAMP TORPEDOES.

PATENTED.



No. 5, Round Shape, Spring Strap.



No. 5, Wedge Shape, Spring Strap.

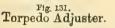
THE SPRING CLAMP is the most secure and safest fastening in use. These Torpedoes can be used with or without the adjusters.

By means of the adjuster they can be securely placed on the rail from the train, even when running at a high rate of speed. They are especially recommended in emergencies and in all cases when a sure fastening is demanded.

The clamp is made of best spring steel, not hoop iron.

PRICE PER GROSS.

No. 5, Round Shape Spring,	-		-	-		\$4.50
No. 5, Wedge Shape Spring,	-	-	-		-	4.50
Price Torpedo Adjuster, each,	~		-	•		3.50



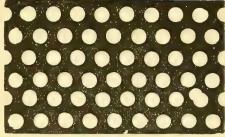
RED LIGHT SIGNAL FUSEES.

			THE AU	RNET.	CO.		1. 1.	
					Fi	g. 132		Per Gross.
No.	1.	10	Minute Fusees.	15	diameter.	hard head.	blac	ek case, iron plug, \$28.00
No.	2.	10	66	15	66	"ferimned"	head	I, pink case, iron plug, 22.00
No.		10		15	66	6.	66	t, pink case, from ping, 22.00
	- /				66			wood plug, 21.00
No.	-	10		$\frac{13}{6}$		66	6.6	" wood plug, 16.00
Mam.		10	66	14	66	66	6.6	red case, iron plug, 38.00
No.	2,	5	66	15	66	66	6.6	white case, iron plug, 16.00
No.	4.	5	6.6	13	66	66	66	the model in 11.00
Mam.	-,	5	66	11	6.6	66		wood bing, 11.00
	E	U.S.		18		••		red case, iron plug, 28.00

Our Fusees cannot be extinguished by rain, wind or snow. Each torch is provided with the latest improved water-proof lighter. To light, remove the button and scratch head of Fusee with inner end.
Our Fusees are made strong and durable, from the best material to be had.

LOCOMOTIVE SPARK PLATE.





3. Fig. 104.

It can be furnished i sheets of any desired thickness and size.

Blank margins can be left for bolts and fastenings.

This plate does not buckle or warp under the influence of intense heat.

It is absolutely uniform in the character of the perforations, and preserves its mesh until the last.

The following information is usually necessary in order to enable, us to execute orders

promptly:
First.—State the exact dimensions, in inches, of the sheets required.

SECOND.—State thickness of plate by Birmingham Wire Gauge.

THER.—State whether or not blank margins or selvage edges are required, of what widths and on which sides; state all particulars as to size and location of bolt holes in the margin; send sketch if possible.

FOURTH.—If possible, send template or drawing where sheets are irregular in size, or man-

hole or exhaust nozzle openings are required, with position of bolt holes marked.

FIFTH. -- Send a sample of any plate which it may be desired to duplicate for perforations

and thickness of plate.

Sixth.—State whether the perforations are to be round, square or oblong; give approximately the distance from center to center, if there is any preference in this direction; state whether the holes are to be staggered or in line both ways; and specify, in case of oval holes, the direction of the plate in which the holes are to run.

SEVENTE.—State whether or not the sheets are to be curved; to what diameter and in what

direction.

0

E

PRICE QUOTED UPON RECEIPT OF SPECIFICATIONS.

CRIMPED LOCOMOTIVE SPARK WIRE CLOTH OF STEEL OR IRON WIRE.

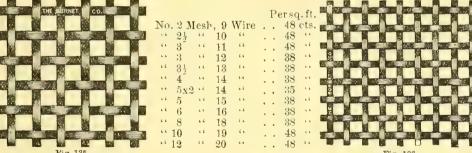


Fig. 135.

No. 4 Mesh, No. 14 Wire.

Fig. 136.

No. 6 Mesh, No. 16 Wire.

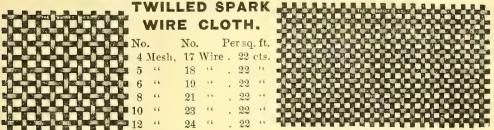


Fig. 137 No. 8 Mesh, No. 18 Wire. Fig. 138.-No. 10 Mesh, No. 19 Wire.

No length less than 100 feet shall be understood to be a roll.

Cents

Condensed Price List of all Meshes and Grades of WIRE CLOTH. STEEL OR IRON

No length less than 100 feet shall be considered to be a Roll. 740 Mesh No. Meshes per in . . Wire 9. 10. No. of Wire ... 8 33, Cents 10. 8, 88. 73, 60, 48, Price per square foot 38 83, 73 60. 48 32 Mash No. Meshes per in... ş, 5. 6. 9 1ô. 13, Wire No. of Wire 10. 1i. No. of Wire...... Price per square foot 73, 60, 38. 32, 14, 12, Cents 88, 48. 12. 10, 8, 22. $\frac{2\frac{1}{9}}{9}$ Mesh 2, 2 $2\frac{1}{2}$, 2. No. Meshes per in ... 9 9 9 2 2 9 16, 18. 10. Wile No. of Wire. 9 8 Cents Price per square foot 60, 38. 32. 27. 22, 14. 12, 10, 8, 60, 48 38. 32. 10. 8, 48. 3. Mesh 24 21. 3 3. 3, 2 3. 3. 3 3 No. Meshes per in . . 24 91 91 14, 15 Wire No. of Wire 16. 18. 19 10, 11. 12. 13 27.22. 17. 12. Cents 14. 38. 32. Price per square foot 22, 10. 60. 48. 3¼, 19. Mesh No. Meshes per in... $\frac{3\frac{1}{9}}{20}$. 9 31 31 21 12, 13. 15, Wire No. of Wire 20. Price per square foot Cents 48. 32, 14, 12, 10, 8. 60. 48. 38 32. 60. 8. 41, 41, 18. 44, 20, Mesh No. Meshes per in . . . 4. 4, 44, 41, 44, 16. 4‡, 19. 21, Wire 22, 8. No. of wire 20, 14, 29. 24. 19. 13. 11, Cents 45, 15. 10, 57 36. Price per square foot No. Meshes per in... 6, Mesh 5. °5, 21, No. of Wire. 14, 19, 20, 99 23. 14, 15, 16, 17, 32, 18, 19, Wire Cents Price per square foot 60. 48. 38, 32. 27, 22. 14, 12, 10. 8 60. 48. 38, 27, 22 Mesh No. Meshes per in... No. of Wire...... 6. 6, 6, 6, 6. 6, 7, 16. 17, 8, 26, 21. 25, 18. 19, 20. 21, Wire 23 15. 16. 24, Price per square foot 38, 22. 17, 12. 8, 12. 10. 69. 48. 32, 27, 14, 10, 60, Cents 14, 8. No. Meshes per i 1... 8. 8. 9. 9. 9, 9. 9. 9, 9. 9, Mesh 8, 8, No. of Wire 22, 23, 25 26. 18, 19. 20. 21, 22 23, Wire 10, 27, 12, 48, 22 Cents Price per square foot 38, 32, 22 14, 8. 60. 38. 22 17, 14, 10, No. Meshes per in... 9. 10, 10, 19, 10. 10. 10. 10. 12. 9. 9 9, 10. 10. 10. 10. Mesh 26, 26, No. of Wire 28. 20. 23, 29. 19. 18 28. Wire Price per square foot 38 17, 14, 10, 8, 60, 48, 32. 12. 10. 8, 60, Cents 12. No. Meshes per in ... 12, 12, 12. 12. 14, 14, 14. 14. Mesh No. ot Wire 90 21, 96 28 30, 20 21 23, 24, Wire Price per square foot 22, 27, 10, 32, 38. 48. 14. 8. 7, 60. 48. 32. 27, Cents 14, 33, No. Meshes per in... 14. 14, 14. 14. 16, 16. 16. 16. 16. 16. 16 16 14, 14, 16 Mesh 32, No. of Wire 26, 27, 15, 30, 31, 28 29. 30 Wire Price per square foot 17, 13, 12, 11. 10 9, 8, 60, 38, 32 27, 22. 15. 13. 12. Cents No. Meshes per in .. 18 19 16 32 16, 18 18, 18 18. 16. 13 18 18 18, 18, 18. Mesh No. of Wire 25 33 34 24 26 9.9 30 32 34. 35 36. Wire Price per square foot 10. 9. 60. 38, 33. 97 99 15. 12. 8. 10 9 11. 11 8 Cents No. Meshes per in ... 20 20, 20, 20 20, 20 90 20, 20. 20 20 20 20 22. 22 22 Mesh No. of Wire 25 26. 23. 29 24 30 34, 35. 30. Wire 27, Price per square foot 62. 52 43 35 20 17 15 10, 46. 30 26. Cents No. Meshes per in... 22, 22, 22 24 24, 24 24. 24 94 24, 24, 24, 24 24, Mesh No. of Wire. 33. 35. 26. 28. 29. 30. 31 35 Wire

55. 12 to 48 inches kept in stock Can make up to 72 inches wide.

46. 38, 30

22 26

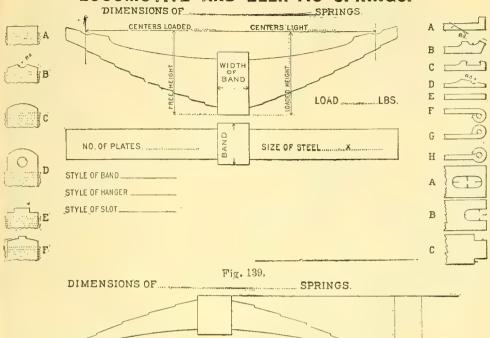
19.

Price per square foot

Table Civing Mesh, Size of Wire and Price per foot of all Grades of BRASS AND COPPER WIRE CLOTH.

No. Meshes per in No. or Size of Wire Price per square foot	2, 10, 250,	11,	2, 12, 150,	2, 13, 110,	2, 14, 80,	2, 15, 60,	2, 16, 50,	3, 11, 250,	3, 12, 20),	3, 13, 150,	3, 14, 110,	Mesh Wire Cents
No. Meshes per in No or Size of Wire Price per square foot	3, 15, 80,	3, 3 16, 17 60, 50		4, 13, 200,	4, 14, 150,	4, 15, 110,	4, 16, 80,	4, 4, 17, 18, 60, 50,	5,	5, 14, 200,	5, 15, 150,	Mesh Wire Cents
No. Meshes per in No. or Size of Wire Price per square foot	5, 16, 110,	5, 5 17, 18 80, 60	, 19, 2	5, 6, 20, 14, 5, 250,	6, 15, 200,	6, 16,	6, 17,	6, 6, 18, 19, 80, 60,	6, 6 20, 21 50, 45	, ₁₈ ,	7, 19, 85,	Mesh Wire Cents
	7, 20, 65,	7, 7, 21, 22, 55, 45,		8. 8, 17, 18, 00, 15),	19,		21, 2		8, 10, 4, 18, 0, 200,	10, 19,	10, 20, 110,	Mesh Wire Cents
No. Meshes per in No. or Size of Wire Price per square foot		22, 23,	10, 10, 24, 25, 45, 40,	19,	12, 12 20, 23 50, 11	1, 22,	12, 23, 60,	12. 12. 24. 25, 10, 45,	26,	14, 14, 2, 23, 10, 80,	14, 24, 60,	Mesh Wire Cents
No. or Size of Wire Price per square foot	50,	26, 27, 45, 40,	24, 25, 80, 60,	16, 16, 26, 27, 50, 45,	28, 2	6, 16, 9, 30, 5, 30,	25,	26, 27,	28,	18, 18, 29, 30, 40, 35,	18, 31, 30,	Mesh Wire Cents
No. Meshes per in No. or Size of Wire Price per square foot	26, 80,	27, 28, 60, 50,	45, 40,		33,	20, 22 34, 27 25, 80	, 28,	29, 30,	31,	22, 22, 32, 33, 35, 30,	24, 28, 80,	Mesh Wire Cents
No. Meshes per in No. or bize of Wire Price per square foot	29,	21, 24, 30, 31, 50, 45,		, 34,	21, 30 35, 30 27, 65	31,	30, 32, 47,	30, 30, 33, 34, 42, 37,	35, 3	36, 40, 32, 32, 5, 70,	40, 33, 55,	Mesh Wire Cents
No. Meshes per in No. or Size of Wire Price per square foot	40, 34, 48,	50, 50, 34, 35, 75, 58,	50, 60 36, 35 50, 78	, 36,	60, 70, 37, 37, 52, 70,	38,	90, 39, 110,	100 40 130				Mash Wire Cents

LOCOMOTIVE AND ELLIPTIC SPRINGS.



The above plates used by permission of National Car Spring Co.

AUXILIARY PLATES_______ Fig. 140.

DRAFT SPRINGS.

DISTANCE BETWEEN BANDS, LOADED



Fig. 141.

BOLSTER SPRINGS.

SIX WHEEL TRUCK

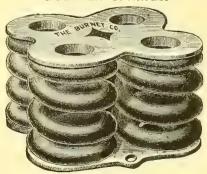


Fig. 142.

PRICES QUOTED ON APPLICATION.

JOURNAL BEARINGS

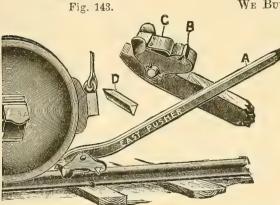
FOR

PASSENGER AND FREIGHT CARS, PONY TRUCKS AND TENDERS.

LOCOMOTIVE DRIVING AND SIDE ROD BRASSES.

Brass Castings Made to Order of any Description, PRICES ON APPLICATION.

WE BUY SCRAP BRASS AND COPPER.



THE "EASY" CAR PUSHER.

Length, 51 feet.

Weight, 20 lbs.

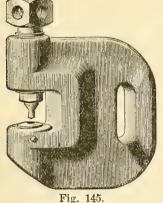
Dist

PRICE, \$5.00.

Extra Steels, 20 cts. Each.

Fig. 144.

STEEL SCREW PUNCHES.

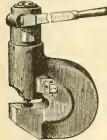


Thickness Size of Weight. Price. No. of Iron. Rivet. Gan. Lbs. 81 \$20 00 11 13 17 24 0 4 11 27 30 1 2 40 40 2 $\frac{1}{2}$ 3 21 60 60 90 75 31 4 41 145 90

PRICES FOR EXTRA PUNCHES AND DIES FOR SCREW PUNCHES
PER PAIR.

No. 00 0 1 2 3 3½ 4 Price, \$3.50 3.50 4.00 4.00 5.00 5.00 5.00

When ordering Punches and Dies it is only necessary to give the size of rivet for which they are to be used, as they are made to punch holes about 1-16 over size marked on them, which allows proper clearance to admit rivet.



HYDRAULIC HEAD PUNCH

FOR BOILER MAKERS, BRIDGE BUILDERS AND SHEET IRON WORKERS.

Adapted for the same use as Screw Punches, but being much easier and quicker worked, thus requiring but one man to operate it.

	Thickness	Size of	0	Weight.	T) 1
No.	of Iron.	Rivet.	Gap.	Lbs.	Price.
2	$\frac{1}{2}$	3/4	2	85	\$ 85
3	3.	$\frac{3}{4}$	$2\frac{1}{4}$	130	110
4	78	7/8	$2\frac{1}{2}$	160	140
	EXTRA	Punches and	DIES PER I	PAIR.	

Fig. 146.

No. 2 3 4 Price, \$2.00 2.50 **3.00**

BELL BOTTOM JACK SCREWS.



These Jack Screws have cast iron barrels, with steel screws and steel collars.

For Workmanship and Durability they cannot be excelled. All Screws are warranted to carry the weight specified.

Diam. of Screw.	Height of Stand.	Height over All	Lifting Capacity.	Price.	Diam. of Screw	Height of Stand.	Height over All.	Lifting Capacity.	Price.
1½ inch	10 in. 1 12 in. 1	7 in. 9 in. 1 in. 3 in. 5 in. 7 in.	10 tons. 10 tons. 10 tons. 10 tons. 10 tons. 10 tons.	\$3.00 3.10 3.40 3.80 4.20 4.60	2⅓ inch	6 in 8 in. 10 in. 12 in. 14 in. 16 in.	10 in. 12 in. 14 in. 16 in. 18 in. 20 in.	24 tons. 24 tons. 24 tons. 24 tons. 24 tons. 24 tons.	\$ 6.75 7.50 8.25 9.00 10.00 11.00
1½ inch	{ 10 in. 1	7½ in. 9½ in. 1½ in. 3 in. 5 in.	12 tons. 12 tons. 12 tons. 12 tons. 12 tons.	3.50 3.75 4.25 4.75 5.25		18 in. 20 in. 22 in. 24 in.	22 in. 24 in. 26 in. 28 in.	24 tons. 24 tons. 24 tons. 24 tons.	12.00 13.25 14.50 15.75
	14 in. 1 16 in. 1	7 in. 9 in.	12 tons. 12 tons.	6.00 6.75		6 in. 8 in. 10 in.	$10\frac{1}{2}$ in. $12\frac{1}{2}$ in. $14\frac{1}{2}$ in.	28 tons. 28 tons. 28 tons.	7.75 8.75 9.75
1¾ inch	10 in. 1 12 in. 1 14 in. 1 16 in. 1	8 in. 9 in. 1 in. 3 in. 5 in. 7 in. 9 in.	16 tons. 16 tons. 16 tons. 16 tons. 16 tons. 16 tons. 16 tons. 16 tons.	4.25 4.50 5.00 5.75 6.25 6.75 7.50 8.50	$2rac{1}{2}$ inch	12 in. 14 in. 16 in. 18 in. 20 in. 22 in. 24 in. 28 in.	16½ in. 18½ in. 20½ in. 22¼ in. 24¼ in. 26½ in. 28¼ in.	28 tons. 28 tons. 28 tons. 28 tons. 28 tons. 28 tons. 28 tons. 28 tons.	10,75 12.00 13.25 14.50 15.75 17.00 18.25 22.00
2 inch	8 in. 1 10 in. 1 12 in. 1 14 in. 1	9 in. 0 in. 2 in. 4 in. 6 in. 8 in. 90 in.	20 tons. 20 tons. 20 tons. 20 tons. 20 tons. 20 tons. 20 tons.	5.00 5.25 6.00 6.75 7.50 8.25 9.25	3 inch	32 in. 16 in. 18 in. 20 in. 24 in.	36½ in. 21 in. 23 in. 25 in. 29 in.	28 tons. 35 tons. 35 tons. 35 tons. 35 tons.	26.00 20.75 22.00 23.25 25.75
	18 in. 2 20 in. 2 22 in. 2	2 in. 4 in. 6 in. 8 in.	20 tons. 20 tons. 20 tons. 20 tons.	10.25 11.50 12.50 13.50	Leve	rs or H	andle Ba	rs Extra	

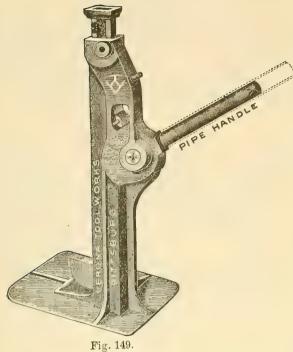
CAR BOX JACK SCREWS.



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Fig. 148.

Diam. of Screw.	Height of Stand.	Price.	Diam. of Screw.	Height of Stand.	Price.
1½ inch	6 in. 8 in. 10 in. 12 in.	\$4.25 4.75 5.25 5.75	$2\frac{1}{4}$ inch	8 in. 10 in. 12 in. 14 in.	\$ 8.01 8.75 9.50 10.50
$1\frac{3}{4}$ inch	$\begin{cases} & 6 \text{ in.} \\ & 8 \text{ in.} \\ & 10 \text{ in.} \\ & 12 \text{ in.} \end{cases}$	5.00 5.50 6.25 6.75	$2rac{1}{2}$ inch	16 in. 8 in. 10 in. 12 in.	11.50 9.25 10.25 11.25
2 inch	6 in. 8 in. 10 in. 12 in. 14 in.	5.75 6.50 7.25 8.00 8.75		14 in. 16 in. Screws are mof the same dis	



of bar when down, 21 inches; lift of rack bar, 14 inches; capacity, 10 tons; size of base, 7 x 12 inches, as recommended by Roadmasters' Association of America. Load can be dropped instantly and with certainty by the lower pawl. No small "trip." Necessary load can be let down one tooth at a time when required.

Weight, 51 pounds; height

PRICE, - - \$23.00

MAXON, NO. 20, DROP TRACK JACK.

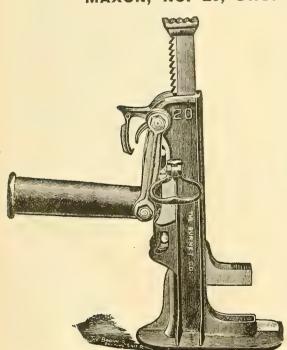


Fig. 150.

This Jack was designed by some of the best and most practical roadmasters of this country. They have been in use and thoroughly tested in every way with entire satisfaction.

With it perfect control is always had of the track without any danger of slipping. The bar has 7-16 inch teeth; can be raised or lowered one or two notches at a time.

A perfect Sure Drop Track Jack that can be relied upon in any emergency. Size of the base is 7 x 12 inches.

The ratchet bar is reinforced by a \(\frac{3}{4}\) inch wrought iron bolt, which increases its strength.

Cold-rolled steel pins are used. Capacity, 10 tons. Rise, 11 1-2 inches. Weight, 50 lbs.

PRICE. - - - \$20.00

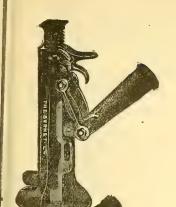


Fig. 151.

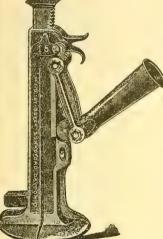


Fig. 152.

MAXON JACKS.

No. 3, CAR AND CENERAL PURPOSE JACK.

The height of this Jack is 19 inches, the rise of the bar being 11 inches. Weight of the Jack 60 lbs., with a capacity of 8 tons, with foot lift. It is used for track The Ratchet bar is reinforced the full length by a 3-inch wrought iron bolt, to which the head is screwed. Each Jack has two small handles, one on each side.

HARDENED STEEL BUSHINGS AND PINS USED. Price. \$16.00

No. 14. HEAVY JACK.

It is used for heavy track and yard work. height of this Jack is 24 inches, the rise of the bar being 15 inches. It is strong and durable. Weight of the Jack 70 lbs., with a capacity of 10 tons. Small handles on each side.

Price. \$25 00

No. 15 JACK.

The height of this Jack is 28 inches, the rise of the bar being 15 inches. Weight of Jack, 115 lbs.; capacity, 15 tons. It is a car and heavy yard Jack. One small handle on each side. Will not slip under load.

Price. \$35.00

No. 16 JACK.

STRONGEST AND MOST POWERFUL JACK IN USE. HARDENED STEEL BUSHINGS AND PINS USED.

The height of this Jack is 34 inches, the rise of the bar being 21 inches. Weight of Jack, 125 lbs.; capacity, 15 tons. It is a heavy wrecking and coach Jack.

\$35.00 Price.

No. 17, JOURNAL OR AXLE BOX JACK.

This is the only successful and practical Ratchet Jack ever made for car inspecting and journal box repairing. Its height is adapted to standard journal boxes. It is very strong and powerful, quick and ready in movement, and excels all other jacks for like work. Carried on engine or caboose, it is a Jack that is very useful. Height of Jack 111 inches, the rise of the bar being 5 inches. Weight of Jack, 48 lbs.; capacity, 6 tons. It is used for Truck or Axle Box Jack.

Price. \$16.00

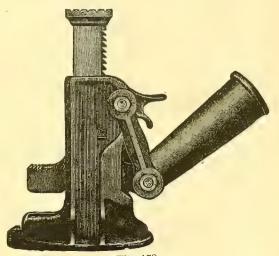


Fig. 153.

"SURE DROP" TRACK JACK.

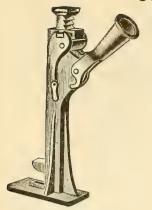


Fig. 154. 15 Ton Jack.



Fig. 155. 15 Ton Jack.

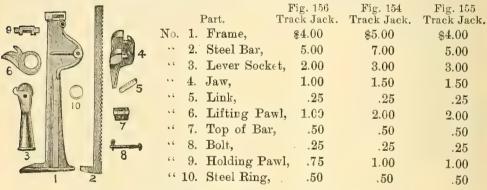


Fig. 156. 10 Ton Jack.

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Style.	Capacity.	Rise of Base.	Height Down.	Size Base.	Weight.	Price.
Fig. 156	10 Ton	15 in.	24 in.	$1\frac{3}{4} \times 1\frac{3}{8}$	60 lbs.	\$14.25
Fig. 154	15 Ton	20 in.	30 in.	$2 \times 1\frac{3}{4}$	95 lbs.	28.00
Fig. 155	15 Ton	10 in.	22 in.	$1\frac{3}{4} \times 1\frac{3}{4}$	75 lbs.	20.00

PRICE LIST OF TRACK JACK PARTS.



CAR INSPECTOR'S OR JOURNAL JACK.

THE MOST POWERFUL SHORT LIFT JACKS ON THE MARKET.



Fig. 157. 15 Ton Jack.



Fig. 158. 10 Ton Jack.

					O TOH OUCH
Style. Fig. 157 Fig. 158 Fig. 159	Height, 11 in. 11 in. 10 in.	Rise. 5 in. 5 in. 5 in.	Weight. 45 lbs. 40 lbs. 21 lbs.	Capacity. 15 Tons 10 Tons 8 Tons	List Price \$22.00 20.00 18.00



Fig. 159. 8 Ton Jack.



Fig. 160.

MAXON JACKS.

No. 9, RATCHET SCREW JACK.

STEEL SCREWS AND GUN METAL NUTS.

STRONGEST AND MOST POWERFUL JACKS IN USE.

Hardened Steel Pushings and Ping wood on each Lock.

Hardened Steel Bushings and Pins used $\mathtt{c} \, \mathtt{n} \, \mathtt{each} \, \mathtt{Jack}.$

Height, 31 inches; rise, 21 inches; weight, 100 pounds; capacity, 30 tons; Gun Metal Nut, 4 inches deep; Steel Screw, $2\frac{1}{2}$ inches in diameter; closed Ratchet. Head and Stand made of the best Air Furnace Malleable Iron.

Price, - - \$60.00

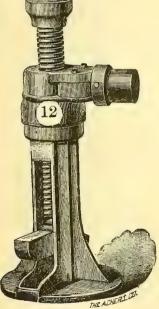


Fig. 161.

No. 12, FOOT LIFT SCREW JACK.

Height of Jack, 31 inches; run of Screw, 18 inches; diameter of Screw, 2½ inches; weight, 115 pounds; capacity, 30 tons; foot lift, 10 tons; Gun Metal Nut; Steel Screw and a Malleable Iron Frame and Ratchet.

Price, - - - - - \$75.00

No. 13, FOOT LIFT SCREW JACK.

Height, 26 inches; run of Screw, 13 inches; diameter of Screw, $2\frac{1}{2}$ inches; weight, 100 pounds; capacity, 30 tons; foot lift, 10 tons; Gun Metal Nut, Steel Screw and Mallable Iron Frame and Ratchet.

MAXON JACKS.

No. 19 POWER JACK.



This Jack is designed for heavy work, such as handling coaches, loaded cars, shop work, etc., and is provided with safety points. The lifting pawl has ten strong teeth. The up and down movement of the lever of this Jack is less than of any other Jack made, starting to lift the load with the lever at an angle of 35 degrees.

Strongest and most powerful Jack made. The Ratchet Bar is reinforced the full length by a 1-inch wrought iron bolt, to which the head is screwed. This gives the bar more rigidity and strength.

HARDENED STEEL BUSHINGS AND PINS USED.

Height, 28 inches; rise, 15 inches; weight, 120 lbs.; capacity 20 tons.

Price, \$40.00

Fig. 162.

We offer an unexcelled line of Screw Jacks. They are in use on many of the leading railroads and in many car shops in our country, and everywhere give entire satisfaction.

No. 6, BUILDING AND BRIDGE JACK.

Height, 16 inches; rise, 9 inches; weight, 28 lbs.; capacity, 20 tons. Steel Screw 2 inch diameter. Gun Metal Nut.

Price. \$22.00

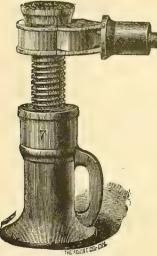


Fig. 164.

No. 7, LOCOMOTIVE JACK.

Height, 12 inches. Rise, 6 inches. Weight, 27 pounds. Capacity, 20 tons.

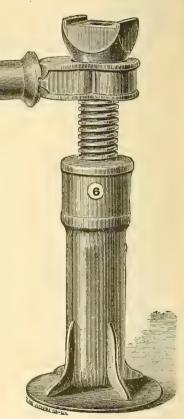
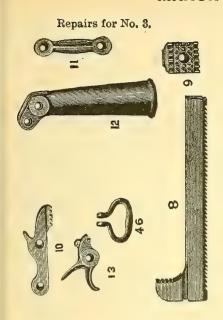


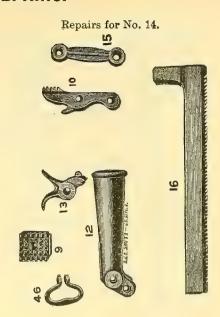
Fig. 163.

Iron Nut instead of Gun Metal Nut. Steel Screw, 2 inches in diameter. Ratchet Box, Head and Stand of Malleable Iron.

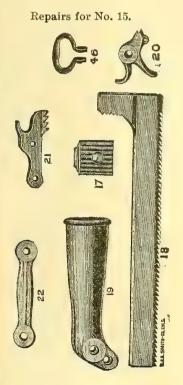
No. 8, same as No. 7, except that it has Gun Metal Nut. Price. \$20.00

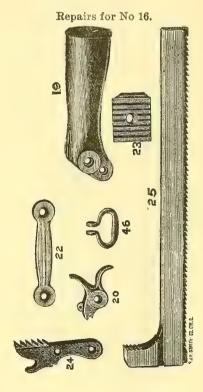
MAXON JACK REPAIRS.





In ordering parts of Jacks from this page give page number, also figure number.

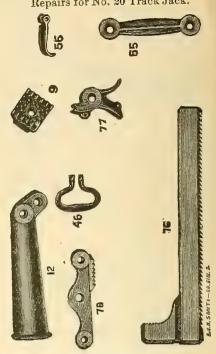




MAXON JACK REPAIRS.

Repairs for No. 19 Power.

Repairs for No. 20 Track Jack.

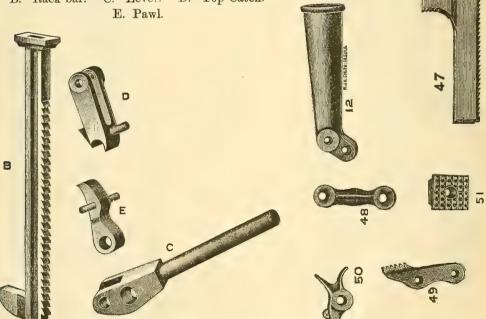


MAXON JACK.

Repairs for No. 17 Jack.

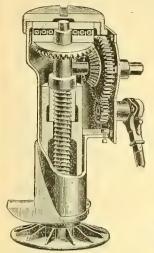
DETAILS OF VERONA TRACK JACK.

D. Top Catch. B. Rack bar. C. Lever. E. Pawl.

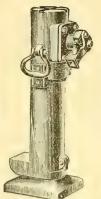


In ordering parts of Jacks from this page give page number, also figure or letter number.

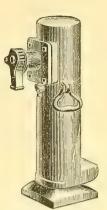
BALL-BEARING COMPOUND BRIDGE JACKS. 15 TO 70 TONS.



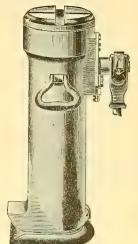
70-ton Bridge Jack. Fig. 165.



25-ton Bridge Jack, Fig. 166.



15-ton Bridge Jack. Fig. 167.



40-ton Bridge Jack. Fig. 168.

			DIAMETER	DIAMETER		LIST
CAPACITY.	HEIGHT.	RISE.	OF BASE.	OF HEAD.	WEIGHT.	PRICE.
15 tons.	22 in.	12 in.	8x9 in.	$5\frac{1}{5}$ in.	90 lbs.	\$ 60.00
20 ''	22 ''	12 ''	8x9 ··	53 "	90	80.00
25 ''	26 ''	13 ''	8x9 "	5 \frac{1}{3} "	110	96 00
25 ''	22 ''	10 "	8x9 ''	51 ··	100 ''	90.00
35 ''	22 ''	10 "	10\frac{1}{2}x8 \cdots	$6\frac{5}{4}$	125 "	130.00
40	2150	10 "	8x9 "	8	180	140.00
50 "	27 ''	13 ''	14 '	10卦 ''	200	150.00
60 "	26 "	12 ''	14 ''	$10^{\frac{7}{2}}$ · ·	300	175.00
70 ''	26 "	12 ''	14 ''	10\frac{1}{2} ""	300 "	200.00

These Jacks are designed for extra heavy bridge and other work, and are made with great care from the best material, and the capacity is fully guaranteed.

When raising light load (30 to 40 tons) on compound Geared Jacks, use ratchet on upper shaft, which gives more speed.

When full power of Jack is required, use ratchet on lower shaft.



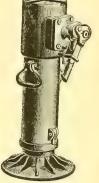
Style C. 31-inch. Fig. 169.

35-TON BALL-BEARING JACK. STYLE C.

STYLE.	HEIGHT CLOSED.	RISE.	DIAM. OF BASE.	WEIGHT.	CAPA- OITY.	LIST PRICE.
C	26 in.	14 in.	12 in.	165 lbs.	35 tons	\$125.00
	31 "	18 "	12 ··	190	35 ''	135.00

Hook extra, \$8.00.

This Jack is designed for heavy locomotive and wrecking car service, pulling well pipes and all other heavy work

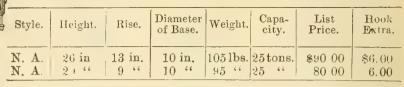


Style C. 26-inch. Fig. 170.

BALL-BEARING JACK, STYLE N. A., 25 TONS.

WITH HOOK FOR GROUND LIFT.

This Jack with square base at same price.

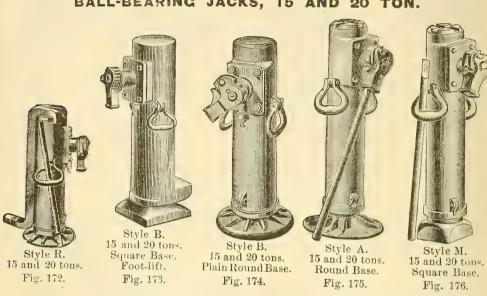


The construction of the Norton Jack is such that it can be carried on locomotives for months at a time, exposed to the coal-dirt and action of the weather, and be found ready for service when needed.

TURNET COMPANY, NEW

BALL-BEARING JACKS, 15 AND 20 TON.

Fig. 171.



In ordering, specify Fig. Number, Capacity and Style Base required.
All Jacks furnished with Square or Round Base at same price.

A A M M B B B B	Capacity. 15 ton. 20 " 15 " 20 " 15 " 20 " 15 " 20 "	Height, 26 in, 26 '' 26 '' 22 '' 22 '' 22 ''	Rise. 13 in. 13 " 13 " 13 " 12 " 12 " 12 "	Diam. of Base. 10 in. 10 " 6x6 " 10 " 10 " 10 " 10 "	Weight. 90 lbs. 90 " 90 " 90 " 80 " 80 " 85 "	List Price. \$70.00 80.00 70.00 80.00 60.00 70.00 65.00	#6 00 6,00 6 00 6,00 6,00 6,00 6 00 Foot cast on.
	10			10 " 10 " 12 "	85 '' 85 '' 80 ''	65.00 75.00 60.00 70.00	Foot east on

10-TON CONE-BEARING RATCHET JACKS.

STYLE N. J.

These Jacks are made with square or round base at same price.



Fig. 178.



Fig. 179.

Style N. J. 10 ton. 20 in.

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Style N. J. 10 ton. 14 in. Style N. J. Bridge Base. 10 ton. 20 in.

Style.	Height Over All.	Height of Foot from Ground.	Rise.	Size of Base,	Weight.	Capacity.	List Price.
N. J. N. J.	20 in.	3 in.	10 in.	8 in.	60 lbs.	10 tons	\$24.00
Sq. Front Base	20 "	3 "	10 "	6x8in.	60 "	10 "	24.00
N. J.	14 "	3 "	7 66	6 x 10 in.	40 "	10 "	22.00

This Jack is designed for Electric and Street Railway service. It is equally well adapted for Carpenters and Builders, Boiler Makers, Truckmen, or for any other work that can be done with Jacks.

These Jacks are made of malleable iron and steel, and have hardened tool steel bearing for end of screw.

CARPENTERS' AND BUILDERS' CONE-BEARING JACKS.

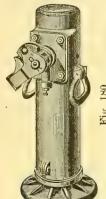


Fig. 180. 15-ton Style G. Without Hook.

Fig. 177.

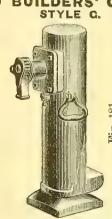


Fig. 181. 15-ton Style G. Foot-Lift Jack

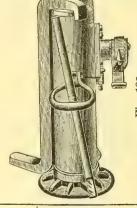


Fig. 182. 15-ton Style G. With Hook.

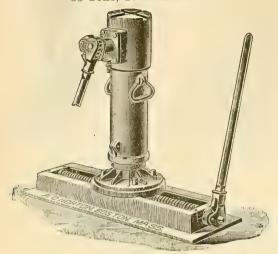
Style	Height	Rise	Base	Weight	Capacity	List Price	Hook Extra
G	22 in.	12 in.	10 in.	80 lbs.	15 tons		\$5.00
G	22 ''	12 "	10 "	85 "	15 "		Foot cast on Shell.

Made from best quality malleable iron and steel throughout. In ordering, specify what style base is wanted and whether with or without hook.

BALL AND CONE-BEARING TRAVERSING JACKS, COMPLETE.

BALL-BEARING TRAVERSING JACK "C"

35 Tons. 20 in. Traverse.



STEEL TRAVERSING BASE.

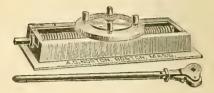


Fig. 184. 15-in. Traversing Base. Height 4 in.

Traverse. Weight. List Price. 20 inches. 124 pounds. \$40.00 15 " 60 " 35.00

Fig. 183.

BALL-BEARING TRAVERSING JACKS, COMPLETE.

Style of Jack.	Capacity.	Height over all.	Rise.	Traverse	List Price.
A	15 tons	30 inches	14 inches	15 inches	\$ 95.00
F	15 "	28 "	10 ''	20 ''	100.00
A	20 "	30 "	14 ''	20 "	120.00
N. A.	25 "	24 "	9 "	20 ''	120.00
N. A.	25 "	30 "	14 "	20 ''	130.00
C, 26 in.	35 ''	30 "	14 ''	20 "	165.00
B. J.	50 "	31 "	13 "	20 "	190.00
B. J.	60 "	30 "	12 ''	20 "	215.00
k	20 ''	24 "	9 "	20 "	110.00

CONE-BEARING TRAVERSING JACKS, COMPLETE.

CONE	DEALLING	I WAAFUOIIIO OV	oko, oomi	M Po 1 Po 1
Style of Jack.	Capacity.	Height over all.	Traverse.	List Price.
N. J.	10 tons	24 inches	15 inches	\$59.00
G	15 ''	26 ''	15 ''	60.00
D	10 ''	26 ''	15 ''	55.00

These Jacks can be taken off the bases and used separately if desired. It is the most Complete Tool Car Outfit in the market. Jacks are Self-Lubricating and require no attention whatever when left in car or shop for months at a time, winter or summer.

Any size, Height or Capacity Jack fitted to either base.

DOUBLE-SPEED BALL-BEARING JACK.

Style F. 15 Tons with Ground Lift.

			Diameter			
Style.	Height.	Rise.	of Base.	Weight.	Capacity.	List Price.
\mathbf{F}	24 in.	10 in.	10 in.	115 lbs.	15 tons.	\$60.00

This Jack has large gear on ratchet shaft, giving it double speed. It is malleable iron and steel throughout, extra strong, and is especially adapted to Electric Plants, power houses on Electric Railways, and for handling heavy machinery, stone, etc.



Fig. 185.

"RELIANCE" HYDRAULIC JACKS.

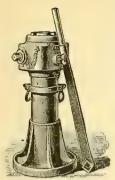


Fig. 186.



Fig. 187.



Fig. 188.

BROAD BASE, SQUARE BASE AND FLAT BASE PATTERN.

				when Closed.	of Base.	$\mathbf{W}\mathbf{eight}$	List.
10 1	ton,	to ris	e 12 in.	$26\frac{1}{2}$ in.	$9\frac{1}{2}$ in.	108 lbs.	\$125.00
10	4.6	4.6	18 ''	33 "	$9\frac{1}{2}$ "	124 ''	135.00
15	4.6	1.6	12 ''	271 "	18 11	141 ''	150.00
15	4.4	4.6	18 "	331 "	10 (6	164 '	165.00
20	6.6	4.4	12 ''	271 "	13 ''	173 "	175.00
20	4.4	4.4	18 "	$34\frac{1}{2}$ "	13 ''	199 "	190.00
30	"	66	12 ''	$27\frac{1}{2}$ "	13 ''	217 "	200.00
30	46	4.6	18 "	$33\frac{1}{2}$ "	13 ''	246 "	225.00



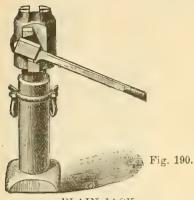
Fig. 189.

CROUND LIFT PATTERN.

				UNUU	MID FILL EX	A 1 T PRINTER		
				Height when Closed.	Height of Claw from Ground.	Diameter of Base.	Weight.	List.
10	ton,	to ris	e 12 in.	$26\frac{1}{2}$ in.	$5\frac{1}{2}$ in.	$5\frac{3}{4}$ in.	124 lbs.	\$135.00
10	4.6	6.6	18 "	33 ''	$5\frac{1}{2}$ "	$5\frac{3}{4}$ "	140 "	150.00
15	4.4	6.6	12 ''	271 11	$5\frac{1}{2}$ "	6 "	154 "	162.00
15	6.6	60	18 ''	331 11	51 "	6 ''	182 "	175.00
20	4.6	6.6	12 ''	28 "	$6\frac{1}{2}$ "	$6\frac{1}{2}$ "	188 ''	190.00
20	4.6	4.6	18 ''	35 ''	61 "	$6\frac{1}{2}$ "	218 ''	205.00
30	4.6	4.6	12 ''	28 "	6 "	71 11	238 44	225.00
30	6.6	6.6	18 "	35 ''	6 "	71 11	270 "	250.00

The best fluid for the Jacks is made of one part water, six parts whiskey, and one-half part of good oil, well shaken together before putting in Jack. Never use coal oil, wood alcohol or water in filling, as the two former destroy the packing, and the latter will burst the cylinder in freezing weather, and rusts the metal.

DODGEON'S LATEST IMPROVED HYDRAULIC JACKS.



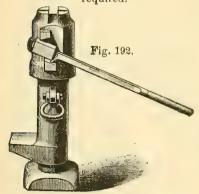
PLAIN JACK.

For use in presses, or where there is a firm foundation or support.

	TO STATE OF THE PARTY OF THE PA
	Fig. 191.
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BASE JACK.

For railroad work, or where a broad base, insuring stability, is required.



CLAW OR GROUND LIFTING JACK.

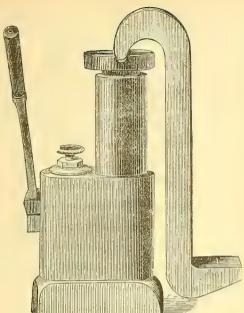
For machine shops, and for work that will not permit the head to be placed under the load.

TONS LIFT	RUN OUT	неівнт	SIZE BOTTOM	WEIGHT	PRICE
4	12	24	4 sq.	46	\$ 60
7	12	25	41 16	64	70
17	18	32	45 "	72	73
17	24	38	41 44	80	75
10	12	25	6 "	80	80
10	18	32	6 "	98	95
10	24	39	6 "	110	110
15	12	26	$6\frac{1}{2}$ "	102	100
15	18	32	65 "	120	125
15	24	39	61 "	140	150
20	12	26	17 66	127	120
20	18	33	17 66	155	145
20	24	39	7 66	180	170
30	9	22	8 rd.	146	150
30	12	26	8	194	175
30	18	33	8 "	260	210
40	12	27	9 "	280	210
40	18	34	9 .:	320	250

TONS	RUN OUT	HEIGHT	DIAM. BASE	WEIGHT	PRICE
4	12	23	9½ in.	61	\$ 60
7	12	25	10 "	82	80
7	18	31	10 "	100	85
7	24	38	10 "	120	90
10	12	25	11 "	109	95
10	18	31	11 "	125	110
10	24	39	11 "	145	125
15	12	25	12 "	135	125
15	18	32	12 "	158	150
15	24	39	12 "	176	175
20	12	26	13 ''	169	150
20	18	33	13 "	198	175
20	24	39	13 "	228	200
30	9	22	14 "	210	170
30	12	26	14 "	259	200
30	18	33	14 "	300	235
40	12	27	141 "	320	240
40	18	33	141 "	360	280

TONS LIFT	RUN OUT	HEIGHT	SIZE	WEIGHT	PRICE
4	12	24	4 sq.	64	\$ 60
7	12	25	41 "	90	85
7	18	31	44 66	110	88
7	24	38	45 "	123	90
10	12	25	6 "	123	100
10	18	32	6 "	144	120
10	24	39	6 "	170	145
15	12	26	61 "	162	150
15	18	32	65 "	189	185
20	12	26	7	207	200
20	18	33	7 66	245	240
30	12	26	8 rd.	310	250

Special Sizes to Order.



SQUARE BASE. Fig. 193.

DUDCEON'S HYDRAULIC SQUARE BASE HORIZONTAL JACK.

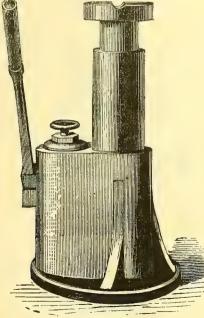
With or without Removable Wrought Iron Jaw.

Tons	Run Out	Height	Size of Square Base	Weight	Price	Price with Claw, used with Square Base only
7	12	20	9 x5½	102	\$80	\$ 85
17	18	26	66 "	120	85	90
10	12	20	$9\frac{1}{2}x7$	135	95	105
10	18	26	-66	166	110	125
10	24	32	66	196	130	150
15	12	21	66	150	125	150
15	18	26	66	187	150	180
15	24	32	66	200	175	215
20	12	21	$11x8\frac{1}{2}$	197	150	185
20	18	27	66 2	242	175	215
20	24	33	66	255	200	250

This style Jack is used where there is a firm foundation, and is especially adapted for use horizontally, as there is no projecting round base to interfere with placing the Jack on its side. Made in this style up to twenty tons ca-

pacity. Above twenty tons, the Oval Base style is used.

Horizontal Jacks, so called, as they will run out as far horizontally as vertically. While standing about five inches less over all will lift the same distance as those on preceding page. A removable Wrought Iron Claw which comes nearer to the ground may be used. All working parts are within the cistern, perfectly protected from injury, while the valves are still easy of access.



ROUND BASE Fig. 194.

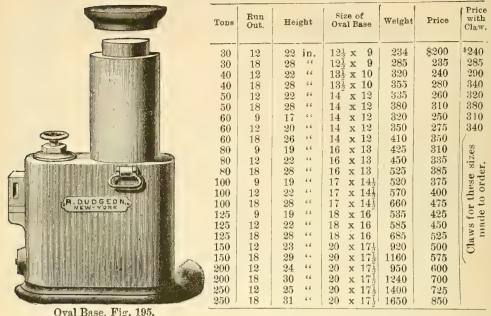
ROUND BASE HORIZONTAL JACK.

Tons	Run Out	Height	Size of Round base	Weight	Price
Pr.	12	20	11	102	\$ 80
7	18	26	11	120	85
10	12	20	12	135	95
10	18	26	12	166	110
10	24	32	12	196	130
15	12	21	12	150	125
15	18	26	12	187	150
15	24	32	12	200	175
20	12	21	$13\frac{1}{2}$	197	150
20	18	27	$13\frac{1}{2}$	242	175
20	24	33	$13\frac{5}{2}$	255	200

This style Jack is used for railroad work, and where a firm foundation is difficult to obtain; also where a long lift with a low height over all is required. Made up to and including twenty tons capacity.

МC

OVAL BASE HORIZONTAL JACK.



Horizontal Jacks of 30 tons and over are made with this style Base. Rams are supplied with either large head (as shown in Figures Nos. 193 and 194) or with loose Cap, as here shown, as preferred. When Claws are used, the large head is necessary. Jacks of this style are provided with removable Wrought Iron Claws, when ordered. In this case a support and guide for the lower end of the Claw is cast on the Cistern. (Not shown in cut).

TRAVERSE JACK.

Fig. 196.

Fons.	Run Out.	Height.	Weight.	Price.
10	12 in.	30 in.	25 0	\$150
15	12 ''	30 ''	275	185
20	12 ''	31 ''	310	225
30	12 "	32 "	425	285

CAR BRASS JACK.

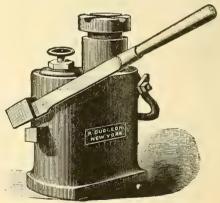


Fig. 197.

Tons.	Run Out.	Height.	Size of Bot.	Weight.	Price.
7	5	11	8 x 5	56	\$75
10	5	12	8 x 5	60	90

This Jack is used by Car Inspectors for removing Brasses; also by those requiring a Jack of limited height.

MORSE TAPER OR STRAIGHT SHANKS, TAPER LENGTH.



Fig. 198.

	Fig. 198.							
Diameter in Inches.	Price Each.	Length in Inches.	Socket for Standard or Morse Taper.	Diameter in Inches.	Price Each.	Length in Inches.	Socket for Standard or Morse Taper.	
1-4 17-64 9-32 19-64 5-16 21-64 11-32 23-64	\$0.60 65 65 70 70 75 75 80	6 1-8 6 1-4 6 1 4 6 3 8 6 3-8 6 1-2 6 1 2 6 3 4		1 9-64 1 5-32 1 11-64 1 3-16 1 13-64 1 7-32 1 15-64 1 1-4	\$ 4.00 4.00 4.20 4.20 4.40 4.40 4.50 4.50	11 7-8 11 7-8 12 12 12 1-8 13 1-8 13 1-8 12 1-2 12 1-2	NO. 3, \$2.50.	
3 8 25-64 13-32 27-64 7-16 29-64 15-32 31-64 1-2 33-64 17-32 35 64 9-16 37-64	80 85 85 90 90 95 1.00 1.10 1.10 1.20 1.30	6 3 4 7 7 1-4 7 1-4 7 1-2 7 3-4 7 3-4 8 1-4 8 1-2 8 1-3	NO. 1, \$1.20.	1 17-64 1 9-32 1 19-64 1 5-16 1 21-64 1 11-32 1 23-64 1 3-8 1 25-64 1 13-32 1 27-64 1 7-16 1 29-64 1 15-32	4.65 4.65 4.80 4.80 5.00 5.20 5.20 5.40 5.60 5.60 5.80 5.80	14 1-8 14 1-8 14 1-4 14 1-4 14 3-8 14 3-8 14 1-2 14 1 2 14 5-8 14 5-8 14 3-4 14 7-8 14 7-8	N O	
19-32 39-64 5-8 41-64 21-32 43-64 11-16 45-64 23-32 47-64 3 4 49-64 25-32 51-64 13-16 53-64 27-32 55-64	1.40 1.40 1.50 1.50 1.60 1.60 1.70 1.85 1.85 2.00 2.00 2.15 2.30 2.30 2.45	8 3-4 8 3-4 9 9 1-4 9 1-2 9 12 9 3-4 9 7-8 10 10 10 1-4 10 1-4 10 1-2	NO. 2, \$1.80.	1 31-64 1 1-2 1 17-32 1 9-16 1 19-32 1 5-8 1 21-32 1 11-16 1 28-32 1 3-4 1 25-32 1 13-16 1 27-32 1 7-8 1 29-32 1 15-16 1 31-32	6.00 6.00 6.30 6.60 6.90 7.20 7.50 7.80 8.10 8.40 8.60 9.00 9.20 9.35 9.50 9.65 9.80	15 15 15 15 1-4 15 1-4 15 3-8 15 1-2 15 5-8 15 3-4 15 7-8 16 1-8 16 1-4 16 3-8 16 1-2 16 1-2 16 1-2 16 1-2 16 1-2	NO. 4, \$4.00.	
7-8 57-64 29-32 59-64 15-16 61-64 31-32 63-64 1 1 1-64 1 1-32 1 3-64 1 1 16 1 5-64 1 3-32 1 7-64 1 1-8	2.45 2.60 2.60 2.75 2.75 2.90 3.00 3.20 3.20 3.40 3.40 3.60 3.60 3.80 3.80	10 1-2 10 5-8 10 5-8 10 3-4 10 3-4 10 7-8 10 7-8 11 1-8 11 1-8 11 1-4 11 1-4 11 1-2 11 3-4	NO. 3, \$2.50.	2 1-32 2 1-16 2 1-8 2 3-16 2 1-4 2 5-16 2 3-8 2 7-16 2 1-2 2 9-16 2 5-8 2 11-16 2 3-4 2 13-16 2 7-8 2 15-16	10.20 10.60 11.20 12.00 12.80 13.60 14.40 15.00 16.20 16.80 17.60 19.00 20.00 21.00 23.00 25.00	16 1-2 17 17 17 17 1-2 17 1-2 17 1-2 18 18 1-2 19 19 1-4 19 1-2 20 1-2 20 1-2 21 21	NO. 5, \$7.50.	

DRILLS FOR BLACKSMITHS' DRILL PRESSES.



Fig. 199.

Diameter .	. 1/8	<u>5</u>	3 7 d	7 32 -5	$\frac{1}{4}$	$\frac{9}{32}$	5 1 6	1 1 3 2 6	$\frac{\frac{3}{8}}{6}$	1 <u>8</u> 8 2	7 ⁷ ह 6	$\frac{15}{82}$	$\frac{\frac{1}{2}}{6}$
Length, inch Price, each	$4\frac{7}{8}$. \$0.45	$4\frac{7}{8}$.48	5 <u>ۇ</u> .50	5§ .55	.60	.65	.70	.73	.75	.78	.80	.83	.85
Diameter .	. 17	19g	· 19	\$ 6	3 1/2 6	11 6	2 3 3 2 6	, }	$\frac{26}{32}$	18 6	$\frac{27}{32}$	7 8	23 6
Length inch Price each	. 6 , \$0.88	.90	6 .95	$\frac{6}{1.05}$	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50
Diameter .	15	9 1 9 2	1	$1_{3\frac{1}{2}}$	$1\frac{1}{16}$	$1\frac{3}{3}\frac{3}{2}$	$\frac{1\frac{1}{8}}{6}$	$1\frac{5}{82}$	1 3 6 6	$\frac{1^{\frac{7}{32}}}{6}$	$\frac{1\frac{1}{4}}{6}$	$1\frac{9}{82}$	$1\frac{5}{16}$
Length inch Price, each	6 . \$1.60	6 1.70	6 1.80	1.90	2.00	2.10	2.20	2.25	2.30	2.35	2 40	2.50	2.60

The above drills have shanks $2\frac{1}{4}$ in, long and $\frac{1}{2}$ in. diameter.

STRAIGHT SHANK DRILLS.



Fig. 200.

THE BUNNET COMPANT, NEW YORK.

JOBBE	RS' AND M.	ACHINIST	rs' SETS.		LETTER S ~				
Intameter to in Inches.	Price per Dozen.	Price Each.	Length in Inches.	Diameter.	Decimals of Inch.	Price per Dozen.	Price Each.	Length in Inches.	
1-16 5-64 3-32 7-64 1-8 9-64 5-32 11-64 3-16 13-64 7-32 15-64 1-4 17-64 9-32 19-64	\$1 00 1 10 1 20 1 30 1 45 1 60 1 80 2 00 2 40 2 40 2 65 2 90 3 15 3 40 3 65 3 90	\$0 09 10 11 12 13 15 16 18 20 21 23 26 28 30 32	2 1-2 2 5-8 2 3-4 2 7-8 3 1-8 3 1-4 3 3-8 3 1-2 3 5-8 3 3-4 4 1-8 4 1-8 4 1-8	A B C D E F G H I J K L M O P	.234 .238 .242 .246 .250 .257 .261 .266 .272 .277 .281 .290 .295 .302 .316	\$2 90 3 00 3 10 3 20 3 30 3 40 3 50 3 60 3 60 3 70 3 80 3 90 4 00 4 10 4 20 4 30	\$0 26 27 28 29 30 30 31 32 33 34 35 36 36 37	3 13-16 3 13-16 3 13-16 3 13-16 3 13-16 4 1-4 4 1-4	
5·16 21-64 11-32 23-64 3-8	4 20 4 50 4 80 5 10 5 40	37 40 42 45 48	4 1-2 4 5-8 4 3-4 4 7-8 5	Q R S T U	.525 ,332 ,339 .348 ,358	4 40 4 60 4 80 5 00 5 20 5 40	39 40 42 44 45 47	4 5-8 4 3 4 4 3-4 4 7-8 4 7-8 5	
25-64 13-32 27-64 7-16 29-64	5 70 6 00 6 40 6 80 7 20	50 53 55 59 63	5 1-8 5 1-4 5 3-8 5 1-2 5 5-8	W X Y Z	.377 .386 .397 .404 .413	5 60 5 80 6 00 6 40 6 80	49 51 53 55 59	5 5 1-8 5 1-4 5 1-4 5 3-8	
15-32 31-64 1-2	7 50 7 75 8 00	65 67 70	5 3-4 5 7-8 6		r very exac		gauge plair	nly marked	

STUBS' STEEL WIRE CAUGE DRILLS.

Numbers by Gauge.	Price per Dozen.	Price Each.	Length in Inches.	Numbers by Gauge.	Price per Dozen.	Price Each.	Length in Inches.
1 to 5	\$2.35	\$0.22	4	31 to 35	\$1.40	\$0.14	2 5-8
6 " 10	2.25	.21	3 11-16	36 " 40	1.25	.12	2 7-16
11 " 15	2.10	.20	3 1-2	41 " 45	1.10	.10	2 1-4
16 " 20	1.95	.19	3 1-4	46 " 60	.95	.09	2 1-16-1 3-4
21 " 25	1.75	.17	3 1-16	61 " 70	.90	.08	1 1-2
26 " 30	1.55	.15	2 13-16	71 " 80	1.00	.09	1 5-16-3-4

TAPER SQUARE SHANK DRILLS, FITTING RATCHETS.



Fig. 201.

Shanks 5-8 in by 3-8 in., and $1\frac{1}{2}$ in. long; and Shanks 3-4 in. by 1-2 in., and $1\frac{3}{4}$ in. long.

Diameter	Price Each.	Length in Inches	Diameter	Price Each.	Length in Inches	Diameter	Price Each.	Length in Inches.
1-4	\$1.00	5	11-16	\$1.45	6 1-2	1 1-8	\$3.10	9
9-32	1.05	5	23-32	1,50	6 1-2	1 5-32	3.25	9
5-16	1.10	5	3-4	1.55	6 1-2	1 3-16	3.40	9
11-32	1.15	, 5	25-32	1.65	6 1-2	1 7-32	3.55	9
3-8	1.20	6	13-16	1.75	7	1 1-4	3.75	9 1-2
13-32	1.25	6 1-4	27-32	- 1.90	7	1 9-32	3.95	9 1-2
7-16	1.25	6 1-4	7-8	2.05	7 1-2	1 5-16	4.20	9 1-2
15-32	1.30	6 1-4	29-32	2.15	7 1-2	1 11-32	4.45	91-2
1-2	1.30	6 1-2	15-16	2.30	8	1 3-8	4.70	10
17-32	1.35	6 1-2	31-32	2.45	8	1 13-32	4.95	10
9-16	1.35	6 1-2	1	2.55	8 1-2	1 7-16	5.25	10
19-32	1.40	6 1-2	1 1-32	2.70	8 1-2	1 15-32	5.50	10
5-8	1.40	6 1-2	1 1-16	2.85	8 1-2	1 1-2	5.75	10
21-32	1.45	6 1-2	1 3.32	3.00	8 1-2			

STRAIGHT FLUTED STRAIGHT SHANK DRILLS.



Fig. 202.

Diameter.	Price per Dozen.	Price Each.	Length in Inches.	Diameter.	Price per Dozen.	Price Each.	Length in Inches.
1-16	\$1.00	\$0.09	2 1-2	19-64	\$3.90	\$0.35	4 3-8
5-64	1.10	.10	2 5-8	5-16	4.20	.37	4 1-2
3-32	1.20	.11	2 3-4	21-64	4.50	.40	4 5-8
7-64	1.30	.12	2 7-8	11.32	4.80	.42	4 3-4
1-8	1.45	.13	3	23-64	5.10	.45	4 7-8
9-64	1.60	.15	3 1-8	3-8	5.40	.48	5
5-32	1.80	.16	3 1-4	25-64	5.70	.50	5 1-8
11-64	2.00	.18	3 3-8	13-32	6.00	.53	5 1-4
3-16	2.20	.20	3 1-2	27-64	6.40	.55	5 3-8
13-64	2.40	.21	3 5-8	7-16	6.80	.59	5 1-2
7-32	2.65	.23	3 3-4	29-64	7.20	.63	5 5-8
15-64	2.90	.26	3 7-8	15-33	7.50	.65	5 3-4
1-4	3.15	.28	4	31-64	7.75	.67	5 7-8
17-64	3.40	.30	4 1-8	1-2	8.00	.70	6
9-32	3.65	.32	4 1-4]		

BIT STOCK DRILLS.



Fig. 203.

Diameter.	Price per Dozen.	Price Each.	Diameter.	Price per Dozen.	Price Each.
2-32 in.	\$1.50	\$0.14	14-32 in.	\$8.80	\$0.75
3-32	1.65	.16	15-32	9.60	.82
4-32 ''	2.10	.20	16-32 ''	10.30	.87
5-32 "	2.60	.24	17-32 ''	11.00	.92
6-32 "	3.10	.29	9-16 "	14.35	1.20
7-32	3.60	.33	5-8 "	16.15	1.35
8-32 "	4.10	.38	11-16 "	17.95	1.50
9-32 **	4.70	.43	3-4 "	19.75	1.65
10-32 ''	5.40	.48	13-16 "	21.55	1.80
11-32 "	6.30	.54	7-8 "	23.35	1.95
12-32 ''	7.20	.62	15-16 "	25.75	2.15
13-32 '	8.00	.68	1 "	28.15	2.35

EXTRA LENGTH WOOD BORING BRACE DRILLS.



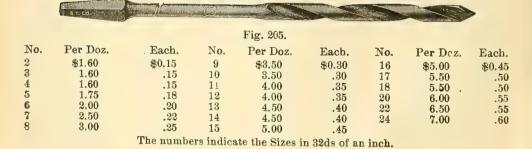
Fig. 204.

FOR BELLHANGERS, ELECTRICIANS, TELEPHONE AND TELEGRAPH WORK.

These Drills will go through plastering, nails and even brick walls, and can be sharpened when dull.

No.	12-11	NCH.	18-I1	NCH.	24-II	NCH.	30-IN	ICH.	36 IN	ICH.
1101	Per Doz	. Each.	Per Doz	. Each.	Per Doz	. Each.	Per Doz	. Each.	Per Doz.	Each.
6	\$5.00	\$0.50	\$7.00	\$0.70	\$9.00	\$0.90	\$11.00	\$1.10	\$13.00	\$1 30
8	5.00	.50	7.00	.70	9.00	.90	11.00	1.10	13.00	1.30
10	5.50	.55	7.50	.75	9.50	.95	12.00	1.20	13.00	1.30
12	6.00	.60	8.00	.80	10.00	1.00	12.00	1.20	13.00	1.30
14	7.00	.70	9.00	.90	11.00	1.10	13.00	1.30	14.00	1.40
16	8.00	.80	10.00	1.00	12.00	1.20	14.00	1.40	15.00	1.50
18	9.00	.90	11.00	1.10	13.00	1.30	15.00	1.50	16.00	1.60
20	10.00	1.00	12.00	1.20	14.00	1.40	15.00	1.50	16.00	1.60
22	11.00	1.10	13.00	1.30	15.00	1.50	16.00	1.60	17.00	1.70
24	12.00	1.20	14.00	1.40	16.00	1.60	17.00	1.70	18.00	1.80
26	13.00	1.30	15.00	1.50	17.00	1.70	18.00	1.80	18.00	1.80
28	14.00	1.40	16.00	1.60	18.00	1.80	19.00	1.90	19.00	1.90
30	15.00	1.50	17.00	1.70	19 00	1.90	20.00	2.00	20.00	2.00
32	16.00	1.60	18.00	1.80	20.00	2.00	20.00	2.00	20.00	2.00

WOOD BORING BRACE DRILLS.



STEEL SOCKETS FOR TAPER SHANK DRILLS.



Fig. 206, or ROUGH.

No 9 Halla 18 4 - 11 2	1.20 No. 4, Holds $1\frac{9}{32}$ to 2 in. inclusive \$4.00 No. 5, Holds $2\frac{1}{16}$ to 3 in. inclusive 7.50
------------------------	--

Fig. 207. FITTED SOCKET.



No. 1, With Shank fitted to No. 2 or 3 Socket														\$2.00
No. 2, With Shank fitted to No. 3 Socket														9.50
No. 3, With Shank fitted to No. 4 Socket	٠			٠										3.20
No. 4, With Shank fitted to No. 5 Socket .	•	0	٠	•	•	•	۰	•	*	٠		•	۰	4.80



Fig. 208. SLEEVE.

No.	1,	Fitted	to	No.	2	or 3 Soc	ket		\$1.80
						Socket			2.40
No.	3,	Fitted	to	No.	4	Socket			3.00
No.	4.	Fitted	to	No.	5	Socket			4.40

TAPER REAMERS FOR DRILL SOCKETS.

For	Taper	of	Morse	Drill	Socket	No.	1		\$2.00 2.60	For	Taper	of	Morse	Drill	Socket	No.	4		\$ 4.20
1.6	4.6	6.6	44	44	4.1	4.4	2		2.60	6.6	66	6.6	6 6	6.8	6.0	44	5		6.60
6.6	1.6	44	4.1	46	e.c.	4.4	3		3.40	4.4	+ 6	6.4	1.1		6.4	6.6	6		12.09

STANDARD TAPER PIN REAMERS.



2 6 5

0

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Fig. 209. Taper \(\frac{1}{4} \) inch per foot.

			Length					Length	Total
Size	Price	Diam, at	of Flute,	Total Length	Size	Price	Diam. at	of Flute	Length, in
No.	Each.	Small End.	in Inches.	in Inches.	No.	Each.	Small End.	in Inches.	Inches.
0	\$1.00	0.125	1 1-2	2 1-4	6	\$2.25	0.279	3 5-8	5
1	1.00	0.146	1 3-4	2 1-2	7	2.50	0.331	4 1-2	6
2	1.25	0.162	2	3	8	3.00	0.398	5 1.4	6 3-4
3	1.50	0.183	21-4	3 1-2	9	3.50	0.482	6 1-8	8
4	1.75	0.208	21-2	4	10	4.00	0.581	7	
5	9.00	0.940	9	A 1 9					

These Reamers have the same taper, and each will overlay in convenient measure the size next smaller. Special sizes made to order.

TAPER REAMERS FOR LOCOMOTIVE WORK.

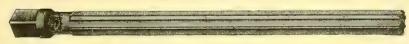


Fig. 210.

Taper $\frac{1}{16}$ or $\frac{3}{32}$ in. per foot.

Diameter at End, in Inches.	Price Each.	Length of Flute, in Inches.	Total Length, in Inches.	Diameter at End.	Price Each.	Length of Flute, in Inches.	Total Length, in Inches.
1-4	\$2.20	4	5 5-16	13-16	\$4.50	9	11 1-4
9.32	2.20	4	5 5-16	7-8	4.80	9	11 1-4
5-16	2.25	4	5 5-16	15-16	5.10	9	11 1-4
11-32	2.25	4	5 5-16	1	5.40	9	11 1-4
3-8	2.30	5	6 5-16	1 1-16	5.70	9	11 1-4
, 13-32	2.40	5	6 5-16	1 1-8	6.20	10	12 1-4
7-16	2.55	6	7 5-16	1 3-16	6.60	10	12 1-4
15-32	2.70	6	7 5-16	1 1-4	7.00	10	$12 \ 1-4$
1-2	3.00	7	8 5-8	1 5-16	7.60	12	14 1-2
9-16	3.20	8	9 5-8	1 3-8	8.00	12	14 1-2
5-8	3.50	8	9 7-8	1 7-16	8.50	12	14 1-2
11-16	3.80	8	9 7-8	1 1-2	9.00	12	14 1-2
3-4	4,10	8	9 7-8				_

PRICES OF DRILLS IN SETS.

No.	1.	Set of Taper Shank Drills, \(\frac{1}{4}\) to 1 in., varying by 16ths	0
No.		Set of Taper Shank Drills, $\frac{3}{8}$ to $1\frac{1}{4}$ in., varying by 16ths 34.50	
No.		Set of Taper Shank Drills, $\frac{3}{8}$ to $\frac{3}{4}$ in., by 32ds, $\frac{3}{4}$ to $1\frac{1}{4}$ in. by 16ths 42.0	0
No.	4.	Set of Taper Shank Drills, $\frac{3}{8}$ to $\frac{3}{4}$ in., by 32ds, $\frac{3}{4}$ to 2 in. by 16ths, 131.0	0
No.	5.	Set Drills, Straight Shanks, $\frac{1}{16}$ to $\frac{1}{2}$ in., by 64ths, mounted 10.0	0
No.	6.	Set Drills, Straight Shanks, $\frac{1}{16}$ to $\frac{1}{2}$ in., by 32ds, mounted 5.4	0
No.	7.	Set Drills, from No. 60 to $\frac{3}{8}$ in., mounted, 9.9	0
No.	8.	Set Drills, Steel Wire Gauge, from No. 1 to 60, mounted 8.1	0
No.	9.	Half Set Drills, alternate Nos. from 1 to 59, mounted 4.3	0
No. 1	0.	Jewelers' Set of 36 Drills, No. 30 (1 in.) to No. 65, Steel Wire Gauge, mounted	
		in a Mahogany case with cap 4.2	
No. 1	11.	Set of Taper Shank Drills, $\frac{3}{8}$ to 2 in., by 32ds,	0
No. 1	12.	Set Machine Bits, \frac{1}{8} in. to \frac{1}{2} in., mounted, varying by 32ds, \dots \dot	0
No 1	13.	Set Bit Stock Drills, $\frac{1}{16}$ to $\frac{1}{4}$ by 32ds, $\frac{1}{4}$ to $\frac{3}{8}$ by 16ths, boxed	0

STANDARD HAND REAMERS.

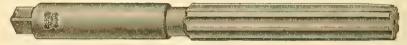
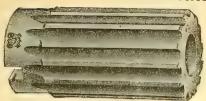


Fig. 211.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				115. 21				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Diameter.	Price Each.		Flute	Diameter.			Flute
	5-82 " 3-16 " 7-32 " 5-16 " 11-32 " 15-32 " 15-32 " 19-32 " 19-32 " 11-16 " 23-32 " 21-32 " 11-16 " 23-32 " 11-16 " 21-32 " 11-16 " 21-32 " 11-16 " 11-32 " 11-16 " 11-32 " 11-16 " 11-32 " 11-16 " 11-32 " 11-16 " 11-32 " 11-4 "	1.10 1.20 1.30 1.40 1.45 1.50 1.55 1.60 1.75 1.85 1.90 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.95 3.10 3.25 3.40 3.55 3.70 3.85 4.00 4.15 4.30 4.45 4.60 4.75 4.90	3 1-4 3 1-2 3 3-4 4 1-4 4 1-2 4 3-4 5 1-2 5 3-4 6 1-4 6 1-2 6 3-4 7 7 11-32 7 11-16 8 1-8 8 23-32 9 1-16 9 3-8 9 11-16 10 3-32 10 1-4 10 11-16 10 7-8 11 1-16 11 7-16 11 5-8 11 13-16 12 1-8 12 1-8 12 1-8	1 5-8 1 3-4 1 7-8 2 1-8 2 1-8 2 1-4 2 3-8 2 1-2 2 5-8 2 3-4 2 7-8 3 1-8 3 1-8 3 1-4 3 3-8 3 1-2 3 43-64 4 3-16 4 27-32 4 11-16 4 27-32 5 1-8 5 11-32 5 5-8 5 11-32 5 5-8 5 11-32 5 5-8 5 11-32 5 5-8 6 1-16 6 1-16 6 1-8	1 3-8	5.60 5.80 6.00 6.20 6.40 6.60 6.80 7.20 7.40 7.60 7.80 8.00 8.20 8.40 8.60 8.80 9.20 9.40 9.60 10.80 11.80 11.80 12.80 14.60 15.40 16.20 17.80 18.60	12 5-8 12 23-32 12 13-16 12 29-32 13 13 13 13 13 13 13 1-2 13 1-2 13 1-2 13 1-2 13 1-2 13 1-2 14 14 14 14 14 14 14 15 15 15 15 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	6 5-16 6 23-64 6 13-32 6 29-64 6 1-2 6 1-2 6 1-2 6 1-2 6 1-2 6 3-4 6 3-4 6 3-4 6 3-4 77 77 1-4 71-2 71-2 71-2 71-2 73-4 73-4 8 1-4 8 1-4
	1 5-16 "	5.20	12 7-16	6 7-32	11]		1

STANDARD SHELL REAMERS.





COMPANT,

BURNE

II



Fig. 213.

	F 1g. 214	Ú.				r 1g. 213.	
Diameter in Inches.	Price Each.	Length in Inches.	Size Hole	Diameter in Inches.	Price Each.	Length in Inches.	Size Hole in Inches.
1-4	\$1.10	1 1-2	1-8	2 13-16	\$8.40	4	1 1-2
5-16	1.10	1 1-2	1-8	2 7-8	8.80	4	1 1-2
3-8	1.20	1 3-4	3-16	2 15-16	9.20	4	1 1-2
7-16	1.30	1 3-4	3-16	3	9,60	4	1 1-2
1-2	1.40	2	1-4	3 1-16	9.90	4 1-3	1 3-4
9-16	1.50	2	1-4	3 1-8	10.20	4 1-2	1 3-4
5-8	1.60	2 1-4	3-8	3 3-16	10.60	4 1-2	1 3-4
11-16	1.60	2 1-4	3-8	3 1 4	11.00	4 1-2	1 3-4
3-4	1.60	2 1-2	1-2	3 5-16	11.50	4 1-2	1 3-4
13-16	1.60	2 1-2	1-2	3 3-8	12.00	4 1-2	1 3-4
7-8	1.70	2 1-2	1-2	3 7-16	12.50	4 1-2	1 3-4
15-16	1.70	2 1-2	1-2	3 1-2	13.00	4 1-2	1 3-4
1	1.80	2 3-4	5-8	3 9-16	13.50	5	
1 1-16	1.80	2 3-4	5-8	3 5-8	14.00	อั	2
1 1-8	1.90	2 3-4	5-8	3 11-16	14.50	5	2
1 3-16	2.00	2 3-4	5-8	3 3-4	15.00	5	2
1 1-4	2.20	2 3-4	5-8	3 13-16	15.50	5	2
1 5-16	2.40	3	3-4	3 7-8	16.00	5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1 3-8	2.60	3	3-4	3 15-16	17.00	5	2
1 7-16	2.80	3	3-4	4	18.00	5	2
1 1-2	3.00	3	3-4	4 1-16	18.30	5 1-2	2 1-4
1 9-16	3.20	3	3-4	4 1-8	18.60	5 1-2	2 1-4
1 5-8	3.50	3	3-4	4 3-16	19.00	5 1-2	2 1-4
1 11-16	3.80	3 1-2	1	4 1-4	19.40	5 1-2	2 1-4
1 3-4	4.10	3 1-2	1	4 5-16	19.80	5 1-2	2 1-4
1 13-16	4.40	3 1-2	1	4 3-8	20.20	5 1-2	2 1-4
1 7-8	4.70	3 1-2	1	4 7-16	20.60	5 1-2	2 1.4
1 15-16	5.00	3 1-2	1	4 1-2	21.00	5 1-2	$2 \ 1-4$
2	5.20	3 1-2	1	4 9-16	21.60	5 1.2	2 1-4
2 1-16	5.40	3 3-4	1 1-4	4 5-8	22.20	6	2 1-2
2 1-8	5.60	3 3-4	1 1-4	4 11-16	22.80	6	2 1-2
2 3-16	5.80	3 3-4	1 1-4	4 3-4	23.40	6	2 1-2
2 1-4	6.00	3 3-4	1 1-4	4 13-16	24.00	6	2 1-2
2 5-16	6.20	3 3-4	1 1-4	4 7-8	24.60	6	2 1-2
2 3-8 2 7-16	6.40	3 3-4	1 1-4	4 15-16	25.20	6	2 1-2
	6.60	3 3-4	1 1-4	5	26.00	6	2 1-2
2 1-2	6.80	3 3-4	1 1-4	5 1-4	30.00	6	2 1-2
2 9-16	7.00	4	1 1-2	5 1-2	34.00	6	2 1-2
2 5-8	7.30	4	1 1-2	5 3-4	38.00	6	2 1-2
2 11-16	7.60	4	1 1.2	6	42.00	6	2 1 2
2 3-4	8.00	4	1 1-2	1	J	J	

ARBORS FOR SHELL REAMERS.

No.	Fitting Sizes. Inches.	Full Length. Inches.	Price Each.	No.	Fitting Sizes. Inches.	Full Length Inches.	Price Each
1 2 3 4 5 6 7	1 to 14 to 15 to 1	6 7 8 9 9 9 9 10 11	\$1.20 1.40 1.60 1.80 2.00 2.20 2.40	8 9 10 11 12 13 14	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	12 13 14 15 16 17 18	\$2.70 3.00 3.40 5.00 7.00 8.50 11.50

ROSE CHUCKING REAMER.

MORSE TAPER SHANK.



Fig. 214.

FLUTED CHUCKING REAMER.

MORSE TAPER SHANKS.



Fig. 215.

Diam- eter.	Price Each.	Full Length.	Length of Flutes, Rose Reamer,	Length of Flute. Fluted Reamer.	Socket for Morse Taper.	Diam- eter.	Price Each.	Full Length.	Length of Flutes. Rose Reamer	Length of Flute. Fluted Reamer.	Socket for Taper.
$\frac{1}{4}$	\$1.20	6 in.	$1\frac{1}{2}$ in.	7/8		$1\frac{1}{4}$	\$3.50	$11\frac{1}{2}$ in.	3 in.	$1\frac{7}{8}$	
32	1.20	6	$1\frac{1}{2}$ "	7/8		1,5	3.70	$11\frac{1}{2}$ "	3 44	17/8	
16	1.30	6 "	11/2 "	78 78 78 78		13/8	3.95	12 "	$3\frac{1}{4}$	2	
11	1.30	6 "	11 "	$\frac{7}{8}$		$1\frac{7}{16}$	4.15	12 "	31	2	No.
3	1.45	7 "	$1\frac{3}{4}$	1	Z	$1\frac{1}{2}$	4.40	$12\frac{1}{2}$ "	$3\frac{1}{2}$	21/8	
1 3 2 2	1.50	7	13 6	1	No.	$1\frac{9}{16}$	4.60	$12\frac{1}{2}$ "	$3\frac{1}{2}$	$2\frac{1}{8}$	•
75	1.55	7 "	14 "	1	<u>;</u>	, 15	4.85	13 "	33 11	$2\frac{1}{4}$	
15 32	1.60	7	13 "	1		$1\frac{1}{1}\frac{1}{6}$	5.10	13	$3\frac{3}{4}$	$2\frac{1}{4}$	
$\frac{1}{2}$	1.65	8 "	2 "	11/8		$1\frac{3}{4}$	5.30	$13\frac{1}{2}$ ··	4 "	$2\frac{3}{8}$	
17	1.70	8 "	2 "	11/8		113	5.50	$13\frac{1}{2}$ "	4 "	$2\frac{3}{8}$	
3 16	1.75	8 ''	2 "	11		$1\frac{7}{8}$	5.70	14 "	41 66	$2\frac{1}{2}$	
19 32	1.80	8 "	2 "	1불 취		115	5.95	14 '	$4\frac{1}{4}$	$2\frac{1}{2}$	
<u>5</u> 8	1.90	9	$2\frac{1}{4}$	$1\frac{1}{4}$		2	6.20	14 ''	41	$2\frac{1}{2}$	
21 32	1.95	9 "	$2\frac{1}{4}$	11/4		2^{1}_{16}	6.50	$14\frac{1}{2}$ "	43 11	$2\frac{3}{4}$	
$\frac{1}{16}$	2.00	9 "	$2\frac{1}{4}$ "	$1\frac{1}{4}$		$2\frac{1}{8}$	6.80	$14\frac{1}{2}$ …	41 4	$2\frac{3}{4}$	
232	2.10	9	$2\frac{1}{4}$	14	2	$2\frac{3}{16}$	7.10	$14\frac{1}{2}$ · ·	41 66	$2\frac{3}{4}$	
$\frac{3}{4}$	2.20	95	$2\frac{1}{2}$ "	13/8	No.	$2\frac{1}{4}$	7.40	143 ''	41	$2\frac{3}{4}$	
25 32	2.30	$9\frac{5}{1}$	$2\frac{1}{2}$ "	18	ço	2^{-5}_{76}	7.70	15	43 0	3	Z
13 16	2.40	87 ··	$2\frac{1}{2}$ "	13/8		$^{2\frac{3}{8}}$	8.00	15 "	$4\frac{3}{4}$	3 }	No.
37	2.50	91 "	21 "	13/8		$2\frac{7}{16}$	8.40	15 ''	43 11	3	ÇT.
7 8	2.55	10 ''	$2\frac{5}{8}$ ··	$1\frac{1}{2}$!	$2\frac{1}{2}$	8.80	15 "	43 "	3	
29	2.60	10 ''	25 · ·	$1\frac{1}{2}$	į	$2\frac{9}{16}$	9.20	$15\frac{1}{2}$	5	$3\frac{1}{4}$	
15 16	2.65	10	25 "	11	1	$2\frac{5}{8}$	9.60	$15\frac{1}{2}$ "	5 44	$3\frac{1}{4}$	
3 1 3 2	2.70	10 "	25 "	11		211	10.00	151 "	5 "	$3\frac{1}{4}$	
1	2.75	101	2^3_4 "	15	1	23	10.40	15} ''	5	$3\frac{1}{4}$	
$1\frac{1}{39}$	2.80	$10\frac{1}{2}$ "	$2\frac{3}{4}$ "	15	7	$2\frac{1}{1}\frac{3}{6}$	10.80	16	$5\frac{1}{4}$ "	31	
116	2.85	$10\frac{1}{2}$ "	$2\frac{3}{4}$ "	15	No.	$2\frac{7}{8}$	11.20	16	51 44	31	
$1\frac{3}{32}$	2.95	101	$2_4^3 \cdots$	15	တ	2^{15}_{16}	11.60	16 **	51 "	31/2	
$1\frac{1}{8}$	3.10	11 '	$2\frac{7}{8}$.	13/4	1	3	12.00	16 ''	51 "	31	
$1\frac{5}{3\frac{5}{2}}$	3 20	11 ''	$2\frac{7}{8}$	13/4					*	-2)	
1 3 1 5 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7	3.30	11	$2\frac{7}{8}$	13/4							
1 7 8	3.40	11 ''	$2\frac{7}{8}$ ··	$1\frac{3}{4}$							

Fig. 216.

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STANDARD V THREAD.

This cut illustrates the style of V thread, and the following table gives the Standard Pitch, as accepted for the same:

Diameter, inches		$\frac{1}{4}$	$\frac{5}{16}$	38	76	$\frac{1}{2}$	$\frac{9}{16}$	5 8	$\frac{1}{16}$	$\frac{3}{4}$	13	8	15 16	1
Pitch or No. Thread .		20	18	16	14	12	13	11	11	10	10	9	9	8
Diameter, inches		11/8	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	15	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	
Pitch or No. Thread .	,	7	7	6	6	5	5	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	4	
Diameter, inches	٠	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{5}{8}$	$3\frac{3}{4}$	$3\frac{7}{8}$	4	
Pitch or No. Thread .		4	4	4	31	$3\frac{1}{2}$	$3\frac{1}{2}$	3^4_1	$3\frac{1}{4}$	$3\frac{1}{4}$	3	3	3	

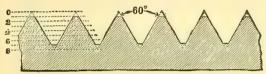


Fig. 217.

U. S. STANDARD THREAD.

ALSO KNOWN AS FRANKLIN INSTITUTE STANDARD.

The above cut illustrates the style of U. S. Standard, threads having same angle as V Standard thread, i. e., 60 degrees, but has flat top and bottom, equal to one-eighth of the pitch. The following table gives the Standard Pitch for the same:

		ì	5	3	7	1	9	5	1 1	3	1.8	7	1.5	1
Diameter, inches		$\frac{1}{4}$	16										15	r
Pitch or No. Thread .			18		14			11	11	10	10	9	9	8
Diameter, inches		$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	15	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	
Pitch or No. Thread .		7	7	6	6	$5\frac{1}{2}$	5	5	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	4	4	
Diameter, inches		$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{8}{1}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3^{\frac{5}{7}}$	$3\frac{5}{8}$	$3\frac{3}{4}$	$3\frac{7}{8}$	4	
Pitch or No. Thread .		4	4	$3\frac{5}{1}$	$3\frac{5}{1}$	$3\frac{1}{2}$	$3^{\frac{5}{7}}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	3	3	3	

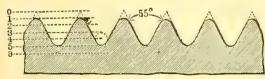


Fig. 218.

WHITWORTH STANDARD THREAD.

This cut illustrates the Whitworth style of thread, and the following table gives the Standard Pitch for same:

Diameter, inches	$\frac{1}{4}$	5 1 €	38	$\overline{1}^{\overline{6}}$	$\frac{1}{2}$	9 16	5	11	$\frac{3}{4}$	$\frac{1}{1}\frac{3}{6}$	$\frac{7}{8}$	$\frac{15}{16}$	1
Pitch or No. Thread					12	12		11	10	10	9	9	8
Diameter, inches										$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	
Pitch or No. Thread	7	7	6	6	5	5	$4\}$	$4\frac{1}{2}$	$4\frac{1}{2}$	4	4	4	
Diameter, inches	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	3^{8}_{1}	$3\frac{1}{4}$	$3\frac{3}{8}$	3 }	$3\frac{5}{8}$	$3\frac{3}{4}$	37	4	
Pitch or No. Thread	4	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	3	3	3	

Taps with Whitwo: th's Standard threads are made to order, at same list prices as Taps with V and United States Standard threads.

MACHINISTS' HAND TAPS.

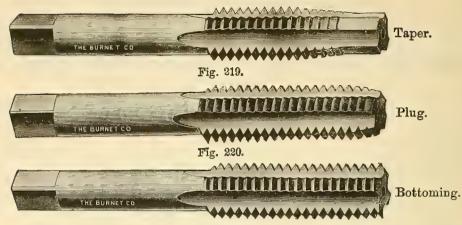


Fig. 221.

Taper, Plug and Bottoming comprise a Set of Taps.

Taper, Plug and Bottoming comprise a Set of Taps.												
Diameter. Inches.	Standard No. V Threads to Inch.	U. S. Standard No. of Threads.	V Threads also Furnished.	Price Each.	Price per Set.							
1	20	20	16, 18, 22, 24, 26, 28, 32	\$ 0.45	\$ 1.35							
5	18	18	16, 20 22, 24, 26, 28	.50	1.50							
1 6	16	$\widetilde{16}$	14, 18, 20, 22, 24, 26, 28	.55	1.65							
8	14	14	12, 16, 18, 20, 22, 24, 26	.60	1.80							
16	12	13	14, 16, 18, 20, 22, 24, 26	.70	2.10							
ğ.	12	12	14, 20, 22 24 26	.80	2.40							
5	11	11	10, 12, 20, 22, 24, 26	.90	$\frac{2.70}{2.70}$							
11	11	11	10, 12, 20, 22, 24, 26	1.05	3.15							
3	10	10	12, 20, 22, 24, 26	1.20	3.60							
13	10	10	12	1.40	4.20							
17			10, 12, 20, 22, 24, 26	1.60	4.80							
15	9 9 8 7	9	27, 22, 23, 23, 22, 23	1.80	5.40							
î	8	8 7	12, 20, 22, 24, 26	2.00	6.00							
1분	7	7	8	2.25	6.75							
$1\frac{\gamma}{4}$	7	7		2.60	7.80							
$1\frac{3}{8}$	6	6	1	3.00	9.00							
$1\frac{1}{2}$	6	$egin{array}{c} 6 & 6 & 5 rac{1}{2} \ 5 & 5 & 4 rac{1}{2} \ 4 rac{1}{2} & 4 rac{1}{2} \end{array}$		3.50	10.50							
15	5	$5\frac{1}{2}$		4.20	12.60							
$1\frac{5}{4}$	5	5		5.00	15.00							
$1\frac{7}{8}$	$4\frac{1}{2}$	5		5.80	17.40							
2	4½	$4\frac{1}{2}$		6.70	20.10							
21	$4\frac{1}{2}$	$4\frac{1}{2}$		8.00	24.00							
$2\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$		9.20	27.60							
$2\frac{3}{8}$	$4\frac{1}{2}$	4		10.50	31.50							
$2\frac{1}{2}$	4	4		11.50	34.50							
200	4	4		13.00	39.00							
$\frac{2\frac{3}{4}}{3}$	4	4		14.00	42.00							
25	4	37		15.50	46.50							
3	32	35		17.00	51.00							
38	33	25		18.75	56.25							
84	3 ½	$3\frac{5}{2}$		20.50	61.50							
38 31	34	$3\frac{1}{4}$		22.00	66.00							
55 95	34	31		24.00	72.00							
98 93	34	$\frac{3^{\frac{1}{4}}}{}$		26.00	78.00							
97	7 6 6 5 5 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5	3		28.50	85.50							
ಗಳೂ ದೇವಡಿಗೆ ಇಗು ಪ್ರಜಾನವಾಗಿ ಪ್ರವರ್ಧ ಸ್ವಾಗಿಸುವ ಸಂಪರ್ಧ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ನಿರ್ವಹಣೆಗಳು ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ಸಂಪರ್ಧ ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ಸಂಪರ್ಧ ಪ್ರವರ್ಣ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪರಕ್ಷ ಸಂಪರಕ್ಷ ಸಂಪರ್ಧ ಸಂಪರ್ಧ ಸಂಪರಕ್ಷ ಸಂಪ	3	4 4 4 9 20 00 00 00 00 00 00 00 00 00 00 00 00		30.00	90.00							
+	0	3	,	32.50	97.50							

Hand Taps, with left-hand threads, $\frac{1}{4}$ to 2 inches diameter, at same list price as right-hand threads

In ordering Taps always specify if V Thread or U. S. Standard Thread is desired. Taps ordered over-size, up to $\frac{1}{32}$ of an inch will be charged as regular sizes.



Fig. 222. - Taper.

MACHINISTS' HAND TAPS. WITH V THREADS.

TAPER, PLUG AND BOTTOMING TAPS COMPRISE A SET.



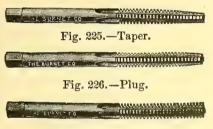


Fig. 223.—Plug.

Fig. 224.—Bottoming.

Diameter Inches.	Standard No. V. Threads to Inch.	Threads also Furnished.	Price Each.	Prica per Set.
16	72	60 and 64	\$0.35	\$1.05
5 11 3	72	56 60 and 64	.35	1.05
3 2	56	48, 50, 52, 54 and 60	.35	1.05
7 64	56	48, 50 and 60	.35	1.05
1/8	40	32, 36, 44 and 48	.35	1.05
9	40	30, 32 and 36	.35	1.05
5 3 9	32	30, 36 and 40	.35	1.05
1 1 6 4	32	36 and 40	.35	1.05
3.	24	22, 28, 32 and 36	.35	1.05
1 3 6 1	24	22, 28, 32 and 36	.35	1.05
7 3 2	24	28, 30, 32 and 36	.35	1.05
15	24	28, 32 and 36	.35	1.05
1/4	20	18, 22, 24, 26, 28 and 32	.45	1.35
	20	18, 22, 24, 26, 28 and 32	.45	1.35

MACHINISTS' HAND TAPS. WITH UNITED STATES STANDARD FORM OF THREAD.



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Fig. 227.—Bottoming.

Standard No. Diameter. Threads also Price Price of Threads to Inches. Furnished. Each. per Set. Inch. 64 60 \$0.35 \$1.05 50 48, 56 and 60 .35 1.05 .35 40 44 and 48 1.05 36 32 and 40 .35 1.05 32 22, 24 and 36 .35 1.05 24, 32 and 36 18, 22, 24 and 26 28 .35 1.05 20 1.35 .45

MACHINE SCREW TAPS.



Fig. 228.

Size of Screw Gauge. No. 1 2 4 6 8 10 12 14 16 18	Approximate Size in Inches. $\frac{1}{168}$ $\frac{6}{64}$ $\frac{6}{64}$ $\frac{6}{64}$ $\frac{6}{64}$ $\frac{7}{8}$ $\frac{1}{8}$ $\frac{7}{8}$	Standard No. of Threads. 56 36 32 32 24 24 24 20 18	Threads also Furnished. 56, 60, 64, 72 48, 64 30, 32, 40, 42, 44, 48 30, 36, 38, 40, 44, 48 24, 30, 36, 40, 44 20, 22, 28, 30, 32, 36 20, 22, 26, 28, 30, 32, 34, 36 16, 18, 22, 24, 26 16, 20, 22, 24, 26 16, 20, 22, 24, 26	Price Each. \$0.35 .35 .35 .35 .35 .35 .35 .35 .35 .35	Price per Doz. \$4.00 4.00 4.00 4.00 4.00 4.00 4.40 4.4
	ড <u> </u>		16, 20, 22, 24, 26 18, 20, 22, 24 14, 18, 20, 22, 24	.38 .45 .45	4.40 5.30 5.30

Less than six Taps of a size and thread will be charged as single Taps.

MACHINE OR NUT TAPS.



Fig. 229.

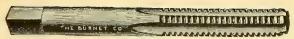
		Fig. ~			
Diameter.	Standard No. of V Threads to Inch.	U. S. Standard No. of Threads.	V Threads also Furnished.	Length over All. Inches.	Price Each.
Inches	20	20	16, 18	5	\$ 0.60
$\frac{1}{4}$ $\frac{5}{16}$	18	18	16	$5\frac{1}{2}$.70
16 3 8	16	16	14, 18	$6\frac{1}{2}$.80
8 7 1 8	14	14	12, 16	7	.90
1 5 1 2	12	13	14	$7\frac{1}{2}$	1.00
2 16	12	12	14	8	1.15
	11	11	10, 12	81/2	1.30
5 8 11 16	11	11	12	9	1.45
1 6 3	10	10		$9\frac{1}{2}$	1.60
$\frac{3}{4}$ $\frac{13}{16}$	10	10		10	1.80
7	9	9	10	$10\frac{1}{2}$	2.10
7 8 15 16	9	9		11	2.40
1	8	8		$11\frac{1}{2}$	2.80
11/8	7	7	8	12	3.20
14	7	7	8	$12\frac{1}{2}$	3.70
$1\frac{3}{8}$	6	6		13	4.20
$1\frac{1}{2}$	6	6		$13\frac{1}{2}$	4.70
$1\frac{5}{8}$	5	$5\frac{1}{2}$		14	5.30
13/4	5	5		$14\frac{1}{2}$	6.00
$1\frac{3}{4}$ $1\frac{3}{8}$	$4\frac{1}{2}$	5		15	6.80
2	$4\frac{1}{2}$	$4\frac{1}{2}$		$15\frac{1}{2}$	7.70
$2\frac{1}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$		16	9.00
$2\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$		$16\frac{1}{2}$	10.20
$2\frac{3}{8}$	$4\frac{1}{2}$	4		17	11 50
$2\frac{1}{2}$	4	4		$17\frac{1}{2}$	12.50
25	4	4		18	14.00
$2\frac{3}{4}$	4	4		$18\frac{1}{2}$	15.0 0
$2\frac{7}{8}$	4	$3\frac{1}{2}$		19	16.50
3	$3\frac{1}{2}$	$3\frac{1}{2}$		$19\frac{1}{2}$	18.00
$3\frac{1}{8}$	$3\frac{1}{2}$	$3\frac{1}{2}$		20	19.75
$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$		$20\frac{1}{2}$	21.50
$3\frac{3}{8}$	$3\frac{1}{4}$	3 1		$20\frac{1}{2}$	23.00
$3\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{4}$		21	25.00
3 5	$3\frac{1}{4}$	$3\frac{1}{4}$		21	27.00
$3\frac{3}{4}$	3	3		21	29.50
$3\frac{7}{8}$	3	3		21	31.00
4	3	3		21	33.50

CORNEL COMPANY, MEW TORN.

Nut Taps, with left-hand threads, 4 to 2 inches diameter, are listed at same

price as right-hand threads.

In ordering always specify if V Thread or U. S. Standard Thread is desired. Also in ordering V Thread state if over-size or even size is wanted. Taps ordered over-size, up to \(\frac{1}{3\omega} \) of an inch, will be charged as regular sizes.



STOVE-BOLT TAPS.

Fig. 230.

Diameter, inches .			<u>5</u>	3 16	32	1	16	38
No. Threads to inch			28	24	22	18	18	$1\overline{6}$
Price each			\$0.35	.35	.35	.38	.38	.45
" per dozen .	٠		4.00	4.00	4.00	4.40	4.40	5.30

Less than six Taps of a size will be charged as single Taps.

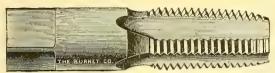


BIT-BRACE TAPS.

Fig. 231.

Diameter, inches .		18 16	1/4	<u>5</u>	3	$\frac{7}{16}$ $\frac{1}{2}$
No. Threads to inch		24	$\overline{20}$	18	16	14 12 & 13
Price each	1	\$0.50	.50	.55	.60	.70 .80

All Bit-Brace Taps are sent even-size, unless over size is called for on the order.



PATCH-BOLT TAPS.

Fig. 232.

Diameter, inches .			1/2	9	5	11 16	3	$\frac{1}{1}\frac{3}{6}$	$\frac{7}{8}$	15	1
Diameter, inches . No. Threads to inch	۰		$1\overline{2}$	12	12	12	$\tilde{12}$	12	12	12	12
Price each			\$0.70	.80	.90	1.05	1.20	1.40	1.60	1.80	$2\ 00$

These Taps are made especially for boiler-makers. They are slightly tapered, for the purpose of making the bolt a steam-tight fit.



BRAZED BRASS TUBING TAPS.

Right or Left Hand.

Fig. 233.

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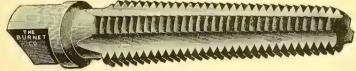
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_	-5"			_		-	1	6	9		- 4
Diameter, inches, . No. Threads to inch			1	5 16	8	76	$\frac{1}{2}$	8	4	\$	1
Diameter, Menes,	•		້ຳຄອ	977	97	97	97	-97	$\bar{2}7$	97	97
No. Threads to inch			21	21	41	41			1 00		0.00
Price each			\$0.45	50	.55	.60	.70	90	1.20	1.60	2.00
Price each		•	ф0. Т 0	.00			-				

These Taps cut a straight thread.

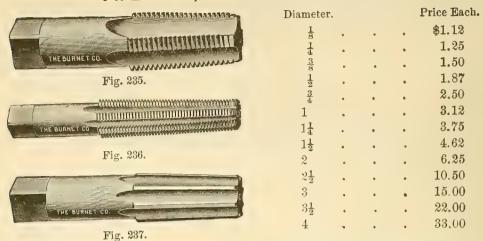


BLACKSMITHS' TAPER TAPS.

Fig. 234.

Diameter, Inches.	No. of Threads to Inch.	Price Each.	Diameter, Inches.	No. of Threads to Inch.	Price Each.
14	18, 20 and 24	\$0.30	$\frac{3}{4}$	10 and 12	\$0.65
4 5 16	16, 18 and 20	.30	78	9 and 10	.90
	14, 16 and 18	.35	ĭ	8	1.25
$\frac{3}{8}$	14, 16 and 18	.40	$1\frac{1}{8}$	7 and 8	1.50
	12, 14 and 16	.40	$1\frac{1}{4}$	7 and 8	1.75
$\frac{1}{2}$	12, 14 and 16	.50	$1\frac{1}{2}$	6	3.00
7 6 5	10, 11 and 12	.50	- 2		
<u>5</u>	TO TT WILL TW				

PIPE TAPS, HOBS AND REAMERS.



All Pipe Taps are sent with Right-hand Threads, unless Left-hand is specified on order.



COMBINED PIPE TAP AND DRILL

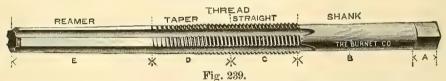
FOR TAPPING CAS AND WATER PIPES.

Fig. 238.

Diameter, inches		4		$\frac{1}{4}$	3 8	1/2	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Length, inches				$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{2}$	$5\frac{3}{4}$	$6\frac{1}{2}$
Price, each				\$1.50	1.75	2.20	3.00	3.80	4.80	5.80	7.60	10.00

Shanks for sizes $\frac{1}{4}$ to $1\frac{1}{2}$ inches are $\frac{11}{16}$ inch by $\frac{1}{2}$ inch, and $1\frac{3}{4}$ inches long. Shanks for sizes 2 and $2\frac{1}{2}$ inches are 1 inch by $\frac{3}{4}$ inch, and 2 inches long.

STAY-BOLT TAPS.

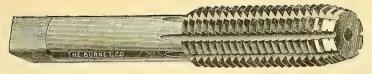


DIAMETER.	PRICE BACH.												
	16 in.	18 in.	21 in.	24 in.	27 in.	30 in.	33 in.	36 in.	39 in.	42 in.	48 in.	54 in.	
3, 13, 7 in.	\$ 5.60	\$ 7 20	\$ 8.00	\$ 8.80	\$10.90	\$13.00	\$14.00	\$15.00	\$16.50	\$18.00	\$19.00	\$20.00	
15, 1 · ·	6.60	8.50	9.35	10.20	12.25	14.25	15.40	16.50	18.00	19.75	21.00	22.25	
$1\frac{1}{16}, 1\frac{1}{8}$ "	7.60	9.50	10.35	11.20	13.25	15.25	16.40	17.50	20.00	22.00	23.50	25.00	
$1\frac{3}{16}, 1\frac{1}{4}$ "	9.00	10.50	12.00	12.75	14.75	16.50	18.00	19.50	22.00	24.00	25.50	27.00	
1 5 1 3 ''	11.00	12.50	14.00	15.00	17.00	18.50	20.00	21.50	24.00	26.00	28.00	30.00	
$1_{\frac{7}{16}}, 1_{\frac{1}{2}}$ "	13.00	14.50	16.00	17.00	19.00	20.00	22.00	23.50	26.00	28.00	30.00	32.00	

All orders for these taps should give exact diameter and number of threads per inch, also length of parts A, B, C, D, and E. Unless otherwise ordered, we shall send these taps with twelve threads to the inch.

Stay-Bolt Taps carried in stock are $\frac{3}{4}$, $\frac{7}{8}$ and 1 inch diameter, twelve threads to the inch, 16, 18, 24, 30, 36 and 42 inches long.

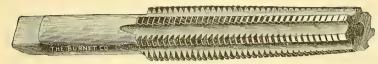
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SHORT HOB TAPS.

For Cutting Open Dies.

Fig. 240.



HOB OR MASTER TAPS

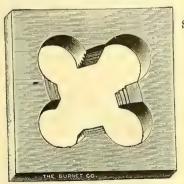
For Cutting Solid Dies.

Fig. 241.

	Standard No. of V	V Threads	Length over All.	Price Each.	Length over All.	Price Each.
Diameter.	Threads	also Furnished.	Short Hob Taps.	Short Hob Taps.	Hob or Master Taps.	Hob or Master Taps.
Inches.	to Inch.	16 and 18		\$0.60	4	\$0.75
1/4	20		$2\frac{3}{4}$.70	4^3_{4}	.87
5 3 8 7 76	18	16	3 1			1.00
8	16	14	$3\frac{1}{2}$.80	$5\frac{1}{2}$	
$\frac{7}{16}$	14	16	$3\frac{3}{4}$,90	618	1.12
	12	13 and 14	4	1.00	$6\frac{1}{2}$	1.25
95	12		$4\frac{1}{4}$	1.15	$6\frac{7}{3}$	1.44
1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	11	10 and 12	$4\frac{1}{2}$	1.30	$7\frac{1}{4}$	1.62
116 16	11	12	$4\frac{3}{4}$	1.45	75	1.81
$\frac{1}{3}$	10		5	1.60	8	2.00
4 13 16	10		$5\frac{1}{4}$	1.80	$8\frac{1}{4}$	2.25
1 6 7 8	9		$5_{2}^{\frac{1}{2}}$	2.10	81	2.62
$\frac{15}{16}$	9		$5\frac{3}{4}$	2.40	$8\frac{7}{8}$	3.00
1	8		6	2.80	$9\frac{1}{4}$	3.50
1 <u>1</u> 8	7	8	61	3.20	95	4.00
$1\frac{1}{4}$	7	8	$6\frac{3}{4}$	3,70	10	4.62
1 ³ / ₈	6		7	4.20	$10\frac{3}{8}$	5.25
1½ 1½	6		$7\frac{1}{4}$	4.70	$10\frac{3}{4}$	5.87
$1\frac{5}{8}$	5	$5\frac{1}{3}$	_	5.30	11½	6.62
$1\frac{3}{4}$	5		$8\frac{1}{2}$	6.00	$11\frac{1}{2}$	7.50
17	$4\frac{1}{2}$	5	9	6.80	$11\frac{7}{8}$	8.50
$1\frac{7}{8}$			$9\frac{1}{3}$	7.70	$12\frac{1}{4}$	9.62
2	$4\frac{1}{2}$	• •	93	1.10	-~4	010%

Over-size Hobs will be charged on next higher list.

Hob or Master Taps are sent even-size, unless over-size is called for.



MACHINE OR SOLID BOLT DIES.

Size Die.	Cutting Size.	Threads.	Each.
$2\frac{1}{2} \times \frac{1}{2}$	$\frac{1}{4}$	20, 18	\$1.80
$2\frac{1}{2} \times \frac{1}{2}$	5 16	18, 16	1.80
$2\frac{1}{2} \times \frac{1}{2}$	3/8	16, 14	1.80
$2\frac{1}{2} \times \frac{1}{2}$	3 8 7 16	14, 12	1.80
$2\frac{1}{2} \times \frac{3}{4}$	1/2	12, 13	1.80
$2\frac{1}{2} \times \frac{3}{4}$		12	$1.9\mathring{0}$
$2\frac{1}{2} \times \frac{3}{4}$	9 6 5 50 3 4 7 1 8	10, 11, 12	2.00
$2\frac{1}{2} \times \frac{3}{4}$	3 4	10, 12	2.25
$2\frac{1}{2} \times \frac{3}{4}$	$\frac{\dot{i}}{8}$	9, 10, 12	.40
$2\frac{1}{2} \times 1$	1	8, 12	2.70
$2\frac{1}{2} \times 1$	11/8	7	3.00
$2\frac{1}{2} \times 1$	$1\frac{1}{4}$	7	3.30

Fig. 242.

We also make Solid Dies; outside dimensions, $3x\frac{3}{4}$, 3x1, $4x\frac{3}{4}$, 4x1 in.; cutting sizes, $\frac{1}{4}$ to $1\frac{1}{2}$ All Solid Bolt Dies will be sent even-size, unless over-size is specified on the order.

SCREW PLATES.



Fig. 242 to 245.

Fig. 242.	SET A, 3	3-16 to 7-1	6 inch; 8	tock 10	inches	lon	ig and
5 sizes Taps	, Dies and	l Guides, 3	-16, 1-4, 5	-16, 3-8,	7-16 in	ch.	
Pric	će, comple	ete in case,					\$8,00
		Stock 10 in			rew Gai	uge	, sizes
of Taps. Die	es and Gui	des, Nos.	14, 16, 18,	20, 24.			
Pric	e, comple	te in case,					\$8.00
I	Diameter o	f Dies in t	hese sets,	1 5-16 ir	iches.		
Fig. 244. L	ike Fig. 2	42, with A	.djustable	Tap Wr	ench,	. 8	\$10.35
Fig. 245. I	ike Fig. 2	43, with A	djustable	Tap Wr	ench,		10.35



Fig. 246. SET A, with 7 sizes, Nos. 10 to 24. Stock 10 inches long; and Screw Gauge sizes Nos. 10, 12, 14, 16, 18, 20 and 24.

Price, complete in case,. Diameter of Dies in this set, 1 5-16 inch.

Fig. 247. SET A, as above, with Adjustable Tap Wrench, . .

Fig. 246 247.

Fig. 248. SET A1. 3-16 to 7-16 inch. Stock 10 inches long; Bit Brace Holder and Nut Wrenches. 5 sizes Taps, Dies, Guides and Nut Wrenches, 3-16, 1-4, 5-16, 3-8, 7-16 inches.

Price in case. Diameter of Dies in this set, 1 5-16 inch.

PRICES OF SINGLE PARTS FOR SETS A AND A1:

Dies, all regular sizes, each, . \$1.00 Guides, each, .20 Stocks (10 inches long), each, 1.50 Holders for use in bit brace (see cut below), .75 Holders for use in lathe (see cut below), Nut Wrenches to fit in stock or holders, each. .20

Fig. 248.

A I. GREEN RIVER SET.

FOR DIES IN SETS "A" AND "A L." HOLDERS



Fig. 249.-Each, \$0.75.

To use in Machine or Bit Brace.



Fig. 250. Each, \$0.75.



Fig. 251-254.

Fig. 251. SET AA, 3-16 to 1-2 inch. Stock 18 inches long. 6 sizes, 3-16, 1-4, 5 16, 3-8, 7-16, 1-2 inch Taps, Dies and Collets. Price, complete,

Diameter of Collets in this set, 2 3-16 inches.

Fig. 252. SET AA, as above, with Adjustable Tap Wrench, \$15.85

Fig. 253. 1-4 to 3-4 inch. Stock 23 inches long, 5 sizes, 1-4, 3-8, 1-2, 5-8, 3-4 inch Taps. Dies and Collets. Price, complete, \$13.00 Diameter of Collets in this set, 2 3-4 inches.

Fig. 254. Same as Fig. 253, but with Adjustable Tap Wrench, . 16.00



Fig. 255. SET B, 1-4 to 3-4 inch. Stock 23 inches long. 7 sizes, 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4 inch Taps, Dies and Collets.

Price, complete, \$16.00

Diameter of Collets in this set, 2 3-4 inches.

Fig. 256. SET B, as above, with Adjustable Tap Wrench, . . \$19.00

Will send above sets 1-32 oversize, V thread, unless otherwise ordered

THE LIGHTNING SCREW PLATES.



Fig. 257.



Fig. 259.



Fig. 261.



Fig. 263.



Fig. 264.

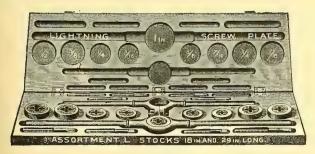


Fig. 266

Fig. 257. SET C, 1-2 to 1 inch. Stock 29 inches long. 5 sizes, 1-2, 5-8, 3-4, 7-8, 1 in. Taps, Dies and Collets.

Price, complete \$18.50 Diameter of Collets in this set, 2 3-4 in.

Fig. 258. SET C, 1-2 to 1 in., as above, with Adjustable Tap Wrench \$22.50

Fig. 259. SET C, 3-8 to 1 inch. Stock 29 inches long. 7 sizes, 3-8, 7-16, 1-2, 5-8, 3-4, 7-8, 1 inch Taps, Dies and Collets.

Fig. 260. SET C. 3.8 to 1 in., as above, with Adjustable Tap Wrench \$26.00

Fig. 261. SET C, 1-4 to 1 inch. Stock 29 inches long. 9 sizes, 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4, 7-8, 1 inch Taps, Dies and Collets.

Price, complete \$25.50 Diameter of Collets in this set, 2 3 4 in.

Fig. 262. SET C, 1-4 to 1 in., as above, with Adjustable Tap Wrenches . . . \$31.85

Fig. 263. SET D, 7-8 to 1 1-2 inch. Stock, 53 inches long. 6 sizes, 7-8, 1, 1 1-8, 1 1-4, 1 3-8, 1 1-2 in. Taps, Dies and Collets. Price complete \$45.00 Diameter and Collets in this set, 4 1-4 in.

Adjustable Tap Wrench . . . \$8.00

Fig. 264. SET K, 1-4 to 3-4 in. 7 sizes. Two Stocks, one 18 inches long, and one 23 inches long; and 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4 inch Taps, Dies and Collets.

Price complete \$18.00 Diameter of Collets in this set 7-16 inch, and under, 2 3-16 in.

Diameter of Collets in this set, 1-2 in. and over, 2 3-4 in.

Fig. 265. SET K, as above, with Adjustable Tap Wrench \$21.00

Fig. 266. SET L, 1-4 to 1 inch. 9 sizes. Two Stocks, one 18 inches long, and one 29 inches long, and 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4, 7-8, 1 inch Taps, Dies and Collets.

Price complete . . . \$27.50

Diameter of Collets in this set, 7-16 in. and under, 2 3-16 in.

Diameter of Collets in this set, 1-2 in. and over, 2 3-4 in.

Fig. 267. SET L, as above, with Adjustable Tap Wrenches \$33.85

THE NEW FULL-MOUNTED LIGHTNING SCREW PLATE.

A STOCK TO EACH DIE.

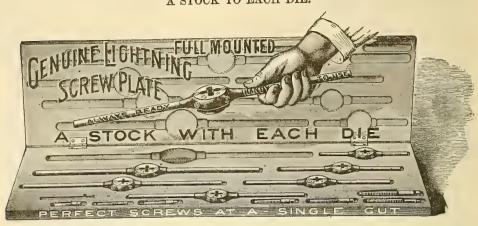


Fig. 268.

Instead of having but a single stock to a set of several Dies, each Die is furnished complete with its own stock of suitable size and weight. The time and trouble in fitting and changing Dies for each occasion is saved. All the Dies in a set can be used at the same time.

Fig. 268.	$\frac{3}{16}$ to $\frac{1}{2}$ inch. A stock to each Die. 6 sizes, $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ inch Taps, Dies	
		\$12.00
Fig. 269.	Same as Fig. 268, but with Adjustable Tap Wrench	14.35
Fig. 270.	$\frac{1}{4}$ to $\frac{3}{4}$ inch. A stock to each Die. 5 sizes, $\frac{1}{4}$ $\frac{3}{3}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ inch Taps, Dies and	
	Stocks. Complete, in case	12.50
Fig. 271.	Same as Fig. 270, but with Adjustable Tap Wrench	15.50
Fig. 272.	Set BB. $\frac{1}{4}$ to $\frac{3}{4}$ inch. A stock to each Die. 7 sizes, $\frac{1}{4}$ $\frac{5}{13}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ inch	
	Taps, Dies and Stocks. Complete, in case	16.00
Fig. 273.	Same as Fig. 272, but with Adjustable Tap Wrench	19.00
Fig. 274.	Set CE. $\frac{1}{2}$ to 1 inch. A stock to each Die. 5 sizes, $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 inch Taps,	
	Dies and Stocks. Complete, in case	18.50
Fig. 275.	Same as Fig. 274, but with Adjustable Tap Wrench	22.50
Fig. 276	Set C.C. $\frac{3}{8}$ to 1 inch. A stock to each Die. 7 sizes, $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 inch	
	Taps, Dies and Stocks. Complete, in case	22.00
Fig. 277.	Same as Fig. 276, but with Adjustable Tap Wrench	26.00
Fig. 278.	Set CCC. $\frac{1}{4}$ to 1 inch. A stock to each Die. 9 sizes, $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$	
	1 inch Taps, Dies and Stocks. Complete, in case	25.50
Fig. 279.	Same as Fig. 278, but with 2 Adjustable Tap Wrenches	31.85
Fig. 280.	$\frac{1}{2}$ to $1\frac{1}{4}$ inches. A stock to each Die. 7 sizes, $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{4}$ inch Taps,	
	Dies and Stocks. Complete, in case	34.75
Fig. 281.	Same sizes as in Fig. 280, but with case holding sizes 1 inch and under only	
	$(1\frac{1}{8} \text{ and } 1\frac{1}{4} \text{ inch not being held in the case})$. Price	31.50
Fig. 282.	3 1 2 4 8 4 8 4	
	Taps, Dies and Stocks. Complete, in case	37.50
Fig. 283.	Same sizes as in Fig. 282, but with case holding sizes 1 inch and under only	
	$(1\frac{1}{8} \text{ to } 1\frac{1}{4} \text{ inch not being held in the case}). \text{ Price } $	35.00
Fig. 284.	$\frac{1}{4}$ to $\frac{1}{2}$ inches. A stock to each Die. 13 sizes, $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $\frac{1}{8}$ 1 $\frac{1}{4}$	
	$1\frac{3}{8}$ $1\frac{1}{2}$ inch Taps, Dies and Stocks. Complete, in case	60.00
Fig. 285.	Same sizes as in Fig. 284, but with case holding sizes 1 inch and under only	
	(sizes $1\frac{1}{8}$ to $1\frac{1}{2}$ inch not being held in the case). Price	55.75

"X" SCREW PLATE.

(ADJUSTABLE DIES 5-8 INCH DIAMETER.) (WITHOUT GUIDES.)	
PRICES OF SINGLE PARTS OF "X" SETS.	
Stock	10
Dies, each	40
	40
THE NURNET C STYLE X STOCK BY INTU ONG	$\frac{40}{50}$
Figs. 286 to 293.)(
Fig. 287. Case containing Stock, Tap Wrench (fitting in stock) and 5 sizes of Taps	
and Dies, \(\frac{1}{8}\) \(\frac{5}{32}\) \(\frac{1}{6}\) \(\frac{7}{32}\) \(\frac{1}{4}\) inch. Price, complete	25
Fig. 288. Case containing Stock, Tap Wrench (fitting in stock) and 5 Screw Gauge	~ •
sizes of Taps and Dies, Nos. 4, 6, 8, 10, 12. Price, complete	35
Fig. 289. Case containing Stock, Tap Wrench (fitting in stock) and 7 sizes of Taps and Dies $\frac{7}{11}$ $\frac{1}{9}$ $\frac{9}{11}$ $\frac{5}{21}$ $\frac{3}{25}$ $\frac{7}{35}$ $\frac{1}{4}$ inch. Price complete	75
and Dies $\frac{7}{64}$ $\frac{9}{8}$ $\frac{5}{64}$ $\frac{52}{32}$ $\frac{1}{36}$ $\frac{7}{32}$ $\frac{1}{4}$ inch. Price complete	40
sizes of Taps and Dies Nos. 4, 6, 8, 10, 12, 14, 16. Price, complete 5	75
Fig. 291. Case containing Stock, Tap Wrench (fitting in stock) and 10 s zes of Taps	
and Dies, $\frac{1}{16}$ $\frac{5}{64}$ $\frac{3}{32}$ $\frac{7}{64}$ $\frac{1}{8}$ $\frac{9}{64}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$ inch. Price, complete	5(
Fig. 292. Case containing Stock, Tap Wrench (fitting in stock) and 10 Screw Gauge	
sizes of Taps and Dies, Nos. 2, 3, 4, 5, 6, 8, 10, 12, 14, 16. Price complete . 7	50
Fig. 293. Case containing Stock, Tap Wrench (fitting in stock) and 12 sizes of Taps	Λ/
and Dies, $\frac{5}{64}$ $\frac{3}{32}$ $\frac{74}{64}$ $\frac{1}{6}$ $\frac{64}{64}$ $\frac{5}{32}$ $\frac{11}{64}$ $\frac{13}{6}$ $\frac{13}{64}$ $\frac{7}{32}$ $\frac{15}{64}$ $\frac{1}{4}$ inch. Price, complete 9 (Fig. 286. Case containing Stock, Tap Wrench (fitting in stock) and 15 sizes of Taps	U(
Fig. 286. Case containing Stock, Tap wrench (fitting in stock) and 15 sizes of Taps	



ELASTIC DIE HOLDERS.

BRAZED



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Fig. 298.

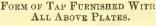




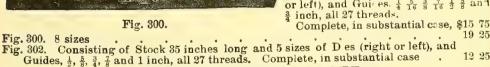
Fig. 299.

These Dies are made to thread Brazed Brass Tubing which is quite thin and therefore requires a fine thread. All that we supply regularly cut 27 threads to the inch, and cut straight, not tapering. The Tubing is measured by its outside diameter.

The stock is made to take a long

The Dies are 23 inches outside diam-Fig. 301. Consisting of Stock 35

inches long and 7 sizes of Dies (right or left), and Gui es. 1/4 16 3 7/16 1/2 8 2111 3 inch, all 27 threads.



LICHTNING SCREW PLATE. FOR PLUMBERS' DRAWN BRASS PIPE.

These Dies cut a tapering thread for water or steam-tight fit on Paumbers' Drawn Brass Pipe, which is measured by its outside diameter. Fig. 303. Consisting of Stock 35 inch s long and 5 sizes of Dies (right or left), and Guides, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 and $1\frac{1}{4}$ inch, complete, as above, in substantial case . . . \$12.25 The number of threads to the inch (pitch) is as follows: 5.8^{20} , 3.4^{20} , 7.8^{18} , 1^{18} , 1. 1.418. Parts, separately: Stock, \$3.50; Dies, \$1.50 each; Guides, \$0.25 each.

PRICES OF PARTS OF THE CREEN RIVER SCREW PLATE.



ning" Screw Plates, excepting the Full Mounted, Pipe and X Plates. In ordering Elastic Stocks give lengths and if possible, state also for which "Fig."

The cut shows Patent Elastic Stock used with all of "Green River" and "Light-

PRICES OF PARTS OF ALL CREEN RIVER SCREW PLATES EXCEPT FICS. 306 & 307.

Sizes.	Taps, Dies and Guides	Dies.	Taps.	Guides.	No. of Threads.
3-16	\$1.77	\$1.25	\$0.45	\$0.25	24
1-4	1.77	1.25	.45	.25	16, 18, 20
5-16	1.80	1.25	.50	.25	16, 18
3-8	2.08	1.50	.55	.25	14, 16, 18
7-16	2.11	1.50	.60	.25	12, 14, 16
1-2	2.17	1.50	.70	.25	12, 13, 14
9-16	2.33	1.60	.80	.25	12. 14
5-8	2.54	1.75	.90	.25	10, 11, 12
11-16	2.78	1.90	1.05	.25	11, 12
3-4	2.97	2.00	1.20	.25	10, 12
13-16	3.34	2.25	1.40	.25	10
7-8	3.71	2.50	1 60	.25	9, 10
15-16	4.08	2.75	1.80	.25	9
1	4.45	3.00	2.00	.25	8
11-8	5.10	3.50	2.25	.25	7, 8
1 1-4	5.81	4.00	2.60	.25	7
1 3-8	6.55	4.50	3.00	,25	6
1 1-2	7.35	5.00	3.50	.25	6
				1	1

GREEN RIVER SCREW PLATES. FIGS. 306 AND 307.

Dies, all r	egula	ar siz	es, e	ach,	\$1.00
Guides, es	ich.				.20
Taps, (see	tabl	e)			
Stock,		•			1.50

PRICES OF STOCKS FOR SETS FICS, 306 TO 328.

			010.							
Length of Stocks.	Price Each.	of Socket.	Figs. of sets in which contained.							
10 in. 18 "	$$1.50 \\ 2.00$	1 5-16 2 3-16	306, 307 308, 309							
22 ''	2.00	2 3-16	(310, 311, 312, 313, 1325, 326, 327, 328							
23 ''	2.00	2 3-4	314, 315							
29 "	2.00	2 3-4	\$\)\{316, 317, 318, 319, \\ \{320, 321, 325, 326\}\]							
35 '' 53 ''	4.00 6.00	$\begin{vmatrix} 2 & 3 - 4 \\ 3 & 7 - 16 \end{vmatrix}$	322, 323, 324, 327 328							
	, 0.00	10.20	3.00							

These Dies and Taps and all Screw Plates (excep ing Nos. 0 and X for wire sizes) will be sent 1-32 over-size (for rough iron) with threa is V form, unless otherwise ordered. Left hand, extra price. All Dies stamped with a star are 1-32 inch over-size. V form of thread.

Can supply Screw Plates with exa t sizes V, U. S. Standard, or Franklin Institute and Whitworth form of thread at regular prices. All parts of Screw Plates can be duplicated from stock.

In ordering Dies, Guides. Collets or Stocks for Screw Plates, care should be taken to give number, letter or figure of set for which parts are wanted.

PRICES OF PARTS OF THE LICHTNING SCREW PLATE. FOR SETS FIGS. 242 TO 246.

	Sizes.	Taps, Dies & Collets,	Dies.	Taps.	Collets.	No of Threads.			
3.4	3-16	\$1.77	\$1.00	\$0.45	\$0.50	24			
6	1-4	1.77	1.00	.45	.50	16, 18, 20			
1.4 to	5-16	1.80	1.00	.50	.50	16, 18			
1 88	3-8	1.98	1.15	.55	.50	$[14, 16 \ 18]$			
siz	7-16	2.16	1.30	.60	.50	12, 14, 16			
nd Fl	1-2	2.42	1.50	.70	.50	12, 13, 14			
J, and sizes]	9-16	2.58	1.60	,80	.50	12, 14			
1,00	5-8	2.79	1 75	.90	.50	[10, 11, 12]			
C. F.	11-16	3.03	1.90	1.05	.50	11, 12			
R,	3-4	3.22	2.00	1.20	.50	10, 12			
AA.	13-16	3.59	3.25	1.40	.50	10			
No. A	7-8	3.96	2.50	1.60	.50	9, 10			
For B	15 16	4.33	2.75	1.80	.50	9			
E.	1	4.70	3.00] 2.00	.50	8			

These Dies and Taps will be sent 1-32 oversize (for rough iron), with threads type V form. unless otherwise ordered. Left hand, extra price.

	Sizes.	Taps, Dies & Collets.	Dies.	Taps.	Collets.	No of Threads.
	Por No. D and 7-8 to 11-2 sizes in D & 3.1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1	6 4.83 5.20 -8 5.85 -4 6.56 -8 7.30	\$2.50 2.75 3.00 3.50 4.00 4.50 5.00	\$1.60 1.80 2.00 2.25 2.60 3.00 3.50	\$1.00 1.00 1.00 1.00 1.00 1.00 1.00	9, 10 9 8 7, 8, 7 6 6
1						

THE PARTY PROPERTY OF A PARTY OF THE PARTY O

PRICES OF STOCKS FOR SETS. FIGS. 242 TO 246.

	Le gth	Price Each.	of Socket,	Figs. of sets in which contained.											
-	18 in.	\$2.00 2.00		251, 252, 264, 265, 266, 267 253, 254, 255, 256, 264, 265											
	29 ''	2.00	2 3-4	(203, 204, 257, 258, 259, 260, 261, 262, 266, 267											



Form of Hand Nut Tans furnished with all the Lightning and Green River Screw Plates (except No. 0 and "X" plates for wire sizes). For prices see page 78, for list and sizes.

THE GREEN RIVER SCREW PLATES.



Fig. 306-307.

Fig. 306. SET No. 1. 3-16 to 7-16 inch. Stock 10 inches long. With both Stock and Brace Holder for Dies. 5 sizes. 3-16, 1-4, 5-16, 3-8, 7-16 inch Taps, Dies and Guides. Complete, in case \$8.75 Diameter of Dies in this set, 15-16 inch.

Fig. 307. SET No. 1, as above, with Adjustable Tap Wrench \$11.10



Fig. 308-309.

Fig. 308. SET No. 11-4. 3-16 to 1-2 in. Stock 18 in. long. 6 sizes, 3-16, 1-4, 5-16, 3-8, 7-16, 1-2 in. Taps, Dies, and Guides. Complete, in case, \$11.00

Diameter of Dies in this set, 2 3-16 in.



Fig. 312-313.

Fig. 312. SET No. 1 1-2. 1-4 to 3-4 inch. Stock 22 inches long. 7 sizes, 1-4, 5-16, 3-8, 7-16, 1 2, 5-8, 3-4 in. Taps, Dies and Guides. Complete, in case, . \$13.00 Diameter of Dies in this set, 2 3-16 inches.



Fig. 314-315.

Fig. 314. SET No. 2. 1-4 to 3-4 inch. Stock 23 in. long. 7 sizes, 1-4, 5-16, 3-8, 7-16, 1-2, 5-8, 3-4 inch Taps, Dies and Guides.

Diameter of Dies in this set, 23-4 in.

Fig. 315. SET No. 2, as above, with Adjustable Tap Wrench, \$18.25



Fig. 316-317.

Fig. 316. SET No. 3. 1-2 to 1 inch. Stock 29 inches long. 5 sizes, 1-2, 5-8, 3-4, 7-8, 1 inch Taps, Dies and Guides. Complete, in case, \$17.00

Diameter of Dies in this set, 2 3-4 in.

Fig. 317. SET No. 3, as above, with Adjustable Tap Wrench, . . . \$21.00

Fig. 318. SET No. 4. 3-8 to 1 inch. Stock 29 inches long. 7 sizes, 3-8, 7-16, 1-2 5-8, 3-4, 7-8, 1 inch Taps, Dies and Guides. Complete, in cases, \$20.00 Diameter of Dies in this set, 2 3-4 in.

Fig. 319. SET No. 4. 3-8 to 1 in., with Adjustable Tap Wrench, 7 sizes, 3-8 7-16, 1-2, 5-8, 3-4, 7-8. 1 in. Taps, Dies and Guides. Stock 29 in. long. Complete, in case, \$24.00



Fig. 318-319.

Will send above sets 1-32 over-size, V thread, unless otherwise ordered.

THE CREEN RIVER SCREW PLATES.



Fig. 320 and 321.

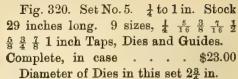


Fig. 321. Set No. 5, as above, with Two Adjustable Tap Wrenches, \$29.35



Fig. 322. Set No. 6. $\frac{1}{2}$ to $1\frac{1}{4}$ inch. Stock 35 inches long. 7 sizes, $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{4}$ inch Taps, Dies and Guides.

Complete, in case . . \$26.00 Diameter of Dies in this set, $2\frac{3}{4}$ in.

Fig. 322 to 324.

Fig. 323. Set No. 7. $\frac{3}{8}$ to $1\frac{1}{4}$ inch. Stock 35 inches long. 9 sizes, $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ 1 $\frac{1}{4}$ inch Taps, Dies and Guides. Complete, in case. . . \$30.00 Diameter of Dies in this set, $2\frac{3}{4}$ inch.

Fig. 324. Set No. 8. $\frac{1}{4}$ to $1\frac{1}{4}$ inch. Stock 35 in. long. 11 sizes, $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{4}$ inch Taps, Dies and Guides. Complete, in case . . \$34.00 Diameter of Dies in this set, $2\frac{3}{4}$ in.

Fig. 325 to 327.

Fig. 325. Set No. 13. $\frac{1}{4}$ to 1 inch, 9 sizes. Two stocks, one 22 inches and one 29 inches long, and $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 inch Taps, Dies and Guides. Complete, in case

Diameter of Dies in this set, $\frac{1}{2}$ in. and under, $2\frac{3}{16}$ inches. $\frac{5}{8}$ in. and over, $2\frac{3}{4}$ in Fig. 326. Set No. 13, as above, with two Adjustable Tap Wrenches . \$31.35 Fig. 327. Set No. 16. $\frac{1}{4}$ to $1\frac{1}{4}$ inch, 11 sizes. Two stocks, one 22 inches long and one 35 inches long, and $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{4}$ inch Taps, Dies and Guides. Complete, in case \$36.00 Diameter of Dies in this set, $\frac{1}{2}$ in. and under, $2\frac{3}{16}$ inches. $\frac{5}{8}$ in. and over, $2\frac{3}{4}$ in.



Fig. 328.

Diameter of Dies in this set, $\frac{3}{4}$ in. and under, $2\frac{3}{16}$ inches.

Diameter of Dies in this set, $\frac{7}{8}$ in. and over, $3\frac{7}{16}$ in.

Will send above sets $\frac{1}{32}$ over-size, ∇ Thread, unless otherwise ordered.

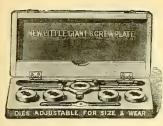


FIG. 329.

WIRE SIZES.

Has Stock, Tap Wrench, Taps, Dies and Collets.

Fig. 329.



FIG. 330.

WIRE SIZES.

Has Stock, Tap Wrench, Taps, Dies and Collets.

Cuts $\frac{7}{64}$ $\frac{1}{8}$ $\frac{9}{64}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$ \$ 8.00

Fig. 330.



FIG. 331.

WIRE SIZES.

Has Stock, Tap Wrench, Taps, Dies and Collets.

*Cuts 7 1 8 64 3 5 11 3 13 7 15 4 \$10.50

Fig. 331.

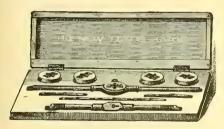


FIG. 332.

WITH ADJUSTABLE TAP WRENCH.

Complete in Box.

Cuts $\frac{1}{4}$ ²⁰ $\frac{5}{16}$ ¹⁸ $\frac{3}{8}$ ¹⁶ $\frac{7}{16}$ ¹⁴ $\frac{1}{2}$ ¹². . . . \$12.00 Length of stock, 14 $\frac{1}{6}$ inches.

Collets are 2 inches in diameter.

Fig. 332



FIG. 333.

WITH ADJUSTABLE TAP WRENCH.

Complete in Box.

Cuts $\frac{1}{4}^{20}$ $\frac{3}{8}^{16}$ $\frac{1}{2}^{12}$ $\frac{5}{8}^{11}$ $\frac{3}{4}^{10}$. . . \$13.50

Length of stock, 23 inches. Diameter of Collets, 23 inches.

Fig. 333.

Will send above sets over size V thread unless otherwise ordered.

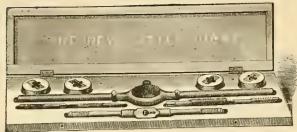


Fig. 334.



Fig. 335.

FIG. 334.

With Adjustable Tap Wrench, Complete in Box.

Cuts $\frac{5}{8}$ ¹¹ $\frac{3}{4}$ ¹⁰ $\frac{7}{8}$ ⁹ 1⁹ \$15.00 Length of stock, 26 inches. Diameter of collets, $2\frac{3}{4}$ inches.

FIG. 335.

With Adjustable Tap Wrench, Complete in Box.

Cuts $\frac{1}{2}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ \$17.50 Length of stock, 26 inches.



With Adjustable Tap Wrench, Complete in Box.

Cuts $\frac{1}{4}$ ²⁰ $\frac{5}{16}$ ¹⁸ $\frac{3}{8}$ ¹⁶ $\frac{7}{16}$ ¹⁴ $\frac{1}{2}$ ¹² $\frac{5}{8}$ ¹¹ $\frac{3}{4}$ ¹⁰ \$16.00

Length of stock, 23 inches. Diameter of collets, $2\frac{3}{4}$ inches.



With Adjustable Tap Wrench, Complete in Box.

 $\begin{array}{c} {\rm C.\,ts}\, \frac{316}{8} \, {}^{7}_{16} \, {}^{14}\, \frac{1}{2} {}^{12}\, \frac{5}{8} {}^{11}\, \frac{310}{4} \, \frac{7}{8} {}^{9}\, 1^{8} \\ \$22.00 \end{array}$

Length of stock, 26 inches. Diameter of collets, $2\frac{3}{4}$ inches.

FIG. 338.

With Two Adjustable Tap Wrenches,
Complete in Box.

Cuts $\frac{1}{4}$ ²⁰ $\frac{5}{16}$ ¹⁸ $\frac{3}{8}$ ¹⁶ $\frac{7}{16}$ ¹⁴ $\frac{1}{2}$ ¹² $\frac{5}{8}$ ¹¹

 $\frac{3^{10}}{4}$ $\frac{7^{9}}{8}$ 1^{8} \$25.50 Length of stock, 26 inches.

Diameter of collets, 2\frac{3}{4} inches.

Will send above sets over-size, V Thread, unless otherwise ordered.



Fig. 336.



Fig. 337.



Fig. 338.

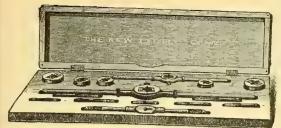


Fig. 339.

FIG. 839.

With Adjustable Tap Wrench.
Complete in Box.

Cuts $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{19}$. . . \$18.00

Has two stocks: $14\frac{1}{2}$ inches long for the first four sizes; 26 inches long for the larger sizes. Diameter of Collets, 2 and $2\frac{3}{4}$ inches.

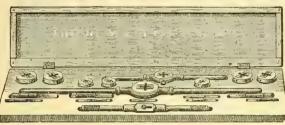


Fig. 340.

FIG. 340.

With
Two Adjustable Tap Wrenches.
Complete in box.

Cuts $\frac{1}{4}$ ²⁰, $\frac{5}{16}$ ¹⁸, $\frac{3}{8}$ ¹⁶, $\frac{7}{16}$ ¹⁴, $\frac{1}{2}$ ¹², $\frac{5}{8}$ ¹¹, $\frac{3}{4}$ ¹⁰, $\frac{7}{8}$ ⁹, $\frac{1}{8}$ \$27.50

Has two stocks: $14\frac{1}{2}$ inches long for the first four sizes; 29 inches long for the larger sizes. Diameter of Collets, 2 and $2\frac{3}{4}$ inches.



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Fig. 341.

FIG. 341.
With Adjustable Tap Wrench.
Cuts \$\frac{5}{8}^{11}\$, \$\frac{3}{8}^{10}\$, \$\frac{7}{8}^{9}\$, \$1^{8}\$, \$1\frac{1}{8}^{7}\$, \$1\frac{1}{4}^{7}\$,
\$\frac{835}{8} 0\$

\$\frac{14}{5} \\ \frac{14}{5} \\ \frac{14}{

Cuts $\frac{7}{8}$, 1^8 , 1_{8}^{17} , 1_{4}^{17} , 1_{8}^{36} , 1_{2}^{16} ,

. \$45.00

FIG. 843.

With Adjustable Tap Wrench. Cuts $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$ 6 \$37.50 Fig. 341 has stock 40 inches long. Figs. 342 and 343 have stocks 52 ins. long. Diameter of Collets, No. 20, 4 inches. Diameter of Collets, Nos. 25 and 30, $4\frac{1}{2}$ inches.

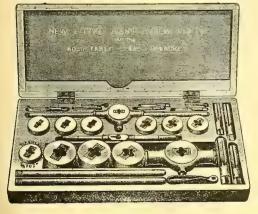


FIG. 344,

With Two Adjustable Tap Wrenches.
Complete in Box.

Cuts $\frac{1}{4}$ ²⁰, $\frac{5}{16}$ ¹⁸, $\frac{3}{8}$ ¹⁶, $\frac{7}{16}$ ¹⁴, $\frac{1}{2}$ ¹², $\frac{5}{8}$ ¹¹, $\frac{3}{4}$ ¹⁰, $\frac{7}{8}$ ⁹, 1⁸, $1\frac{1}{8}$ ⁷, $1\frac{1}{4}$ ⁷ . \$40.00

Has two stocks: 23 inches long for the first seven sizes; 40 inches long for the largest sizes. Diameter of Collets, 23 and 4 inches.

Will send above sets over-size V thread unless otherwise ordered.



ASSORTMENT NO. 50.

WITH TWO ADJUSTABLE TAP WRENCHES
COMPLETE IN BOX.

Cuts
$$\frac{1}{4}^{20}$$
 $\frac{5}{16}^{18}$ $\frac{3}{8}^{16}$ $\frac{7}{16}^{14}$ $\frac{1}{2}^{12}$ $\frac{5}{8}^{11}$ $\frac{3}{4}^{10}$ $\frac{7}{8}^{9}$ 1^{8} $1^{\frac{1}{8}^{7}}$ $1^{\frac{1}{4}^{7}}$ $1^{\frac{3}{8}^{6}}$ $1^{\frac{1}{2}^{6}}$ \$60.00

Has two stocks.

26 inches long for the first nine sizes.

52 inches long for the largest sizes. Diameter of Collets, $2\frac{3}{4}$ and $4\frac{1}{2}$ inches.

Fig. 345.

ADJUSTABLE TAP WRENCHES.



Fig. 346.

																			PRICE
																			EACH
No.	0.	5	inches	long;	fitting	Taps	$\frac{1}{16}$	to	$\frac{3}{16}$	-									\$1.00
66	1.	$7\frac{1}{2}$	inches	long;	fitting	Taps	18 1	to	38						ø				1.50
6.6	$1\frac{1}{2}$.	10	inches	long;	fitting	Taps	7°6 .	to	$\frac{1}{2}$		٠		٠						2.00
66	2.	12	inches	long;	fitting	Taps	$\frac{1}{4}$	to	$\frac{5}{8}$							۰	٠		2.00
46	' 3.	14	inches	long;	fitting	Taps	$\frac{1}{2}$	to	34					4					3.00
66	4.	19	inches	$\log;$	fitting	Taps	3 1	to:	11			۰							4.00
6.6	5.	24	inches	long;	fitting	Taps	$\frac{7}{8}$ 1	to 1	$\frac{1}{2}$			a	•						5.25

ADJUSTABLE TAP WRENCHES.



Fig. 347.

No.	Τ	Holds	Taps	to No.	14 ($r^{\frac{18}{64}}$															\$0.50
66	2	66	66	66 66	16	66 9				-	·		•		•		•	•	•	•	φυ.υυ
66	9	66	6.6		24	3 3	•		•	•		•	٠	•			•		•		.75
	_				16°±	7.6															7 00
	_	The state of the s	. ,	THOHOR	101	Tans.	71.43	1:(-)	udja.												7 50
6.6	5		101	66	66	66	3	66	4	•	•	•	•	•		•	•	•	•	•	1.00
	0		102				16	•	$\overline{2}$	•		•							•	٠	2.00
66	8	66	19	6.6	66	66	8	"	4.1	•	•	۰	•	•	•	•			•		3,50
	O	6.6	±4				4	••	15				4		,	0					7.00

"LITTLE CIANT" FULL STOCKED SCREW PLATES.											
Size											
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$											
PRICE LIST OF COLLETS. Number of Die											
Size of Dies											
PRICE LIST OF STOCKS. Number of Stock											
Length of Stock, in inches . $7\frac{1}{2}$ $14\frac{1}{2}$ 23 26 29 40 52 For Diameter of Collets . $1\frac{1}{4}$ 2 $2\frac{3}{4}$ $2\frac{3}{4}$ $2\frac{3}{4}$ $2\frac{3}{4}$ $4\frac{3}{4}$ Price . . 50.70 1.50 2.00 2.00 2.00 6.00 8.00											
MACHINISTS' SCREW PLATES.											
S.W.CARD											
Fig. 348.											
No. 1½. 9 inches long, 4 pair Dies, 4 Taps. Cutting Nos. 6, 32; 8, 30;											
10, 24; 14, 20											
No. $11\frac{1}{2}$. 9 inches long, 4 pair Dies, 4 Taps. Cutting, $\frac{3}{32}$, 32 ; $\frac{5}{32}$, 30 ; $\frac{3}{16}$, 24 ; $\frac{1}{4}$, 20											
No. 111½. 9 inches long, 3 pair Dies, 4 Taps Cutting Nos. 14, 20; 16, 18;											
18, 18; 20, 16;											
SWEARC SWEARC											
Fig. 349.											
No. 00. 6 inches long, 4 pair Dies, 4 Taps. Cutting Nos. 2, 64; 3, 56; 4, 48; 6, 40											
No. 00 A. 6 inches long, 3 pair Dies, 4 Taps. Cutting Nos. 4, 36; 6, 32; 8, 32; 10, 24											
No. 0. 7½ inches long, 4 pair Dies, 4 Taps. Cutting Ncs. 4, 48; 6, 40;											
10, 32; 14, 24											
No. 0 N. 7½ inches long, 4 pair Dies, 4 Taps. Cutting, 15, 24; 32, 24; 4, 20; 32, 18											

HE BURNET COMPANY, NEW YORK.

MACHINISTS' SCREW PLATES.



Fig. 350.

No. 21.	11½ inches long, 3 pair Dies, 3 Taps;			
_	cutting $\frac{1}{4}$, 20; $\frac{3}{8}$, 16; $\frac{1}{2}$, 12	•	•	\$5.00
No. 2½ A.	11½ inches long, 3 pair Dies, 3 Taps;			
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$, 18; $\frac{3}{8}$, 16	•	•	4.80
No. $2\frac{1}{2}$ C.	11½ inches long, 5 pair Dies, 5 Taps;			
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$, 18; $\frac{3}{8}$, 16 $\frac{7}{16}$, 14; $\frac{1}{2}$, 12	•	•	7.50
No. 3.	14 inches long, 3 pair Dies, 3 Taps;			
	cutting $\frac{3}{8}$, 16; $\frac{7}{16}$, 14; $\frac{1}{2}$, 12	g	•	5.50
No. 3 A.	14 inches long, 3 pair Dies, 3 Taps;			
	cutting $\frac{3}{8}$, 16; $\frac{1}{2}$, 12; $\frac{5}{8}$, 11	•	•	5.80
No. 3 D.	14 inches long, 6 pair Dies, 6 Taps;			
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$, 18; $\frac{3}{8}$, 16; $\frac{7}{16}$, 14; $\frac{1}{2}$, 12; $\frac{5}{8}$, 11	٠	•	9 60
No. 4 B.	19 inches long, 7 pair Dies, 7 Taps;			
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$, 18; $\frac{3}{8}$, 16; $\frac{7}{16}$ 14; $\frac{1}{2}$, 12; $\frac{5}{8}$, 11; $\frac{3}{4}$, 10	•	•	13.50
Machi	nists' Taper Hand Taps are sent with the above Plates.			

BLACKSMITHS' SCREW PLATES.

These Plates are the same as our Machinists' Screw Plates, illustrated above, except that we furnish them with Blacksmiths' Taper Taps.

No. $2\frac{1}{2}$ D.	11½ inches long, 3 pair Dies and 3 Taps;					
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$. 18; $\frac{3}{8}$, 16			•		\$4.65
No. $2\frac{1}{2}$ E.	11½ inches long, 3 pair Dies and 3 Taps;					
	cutting $\frac{1}{4}$, 20; $\frac{3}{8}$, 16; $\frac{1}{2}$, 12	•		•	•	4.85
No. $2\frac{1}{2}$ F.						
	cutting $\frac{1}{4}$, 20; $\frac{5}{16}$, 18; $\frac{3}{8}$, 16; $\frac{7}{16}$, 14; $\frac{1}{2}$, 12			•		6.85
No. 3 E.	14 inches long, 3 pair Dies and 3 Taps;					
		. •	•			5.10
No. 3 F.	14 inches long, 4 pair Dies and 4 Taps;					
	cutting $\frac{3}{8}$, 16 ; $\frac{7}{16}$, 14 ; $\frac{1}{2}$, 12 ; $\frac{5}{8}$, 11			•		6.25
No. 4.	19 inches long, 3 pair Dies and 4 Taps;					
	cutting $\frac{3}{8}$, 16 ; $\frac{1}{2}$, 12 ; $\frac{5}{8}$, 12 ; $\frac{3}{4}$, 10	•	•			6.00
No. 7.	27 inches long, 3 pair Dies and 4 Taps;					
	cutting $\frac{1}{2}$, 12; $\frac{5}{8}$, 12; $\frac{3}{4}$, 10; 1, 8	•		•	•	8.25
No. 8.	30 inches long, 3 pair Dies and 6 Taps;					
	cutting $\frac{3}{4}$, 10; $\frac{7}{8}$, 10; $\frac{7}{8}$, 9; 1, 9; $1\frac{1}{8}$, 8; $1\frac{1}{4}$, 8					10.50

3 2 COMPANY, H

BUR

THE

ARMSTRONG'S ADJUSTABLE STOCKS ARRANGED WITH BOLT DIES.

AND WITH AND WITHOUT HAND TAPS, AND WITH DIES FOR THREADING PIPE.									
SIZE No. 1 STOCK.									
No. 1 Stock, 7 Bolt Dies, $\frac{1}{4}$ to $\frac{3}{4}$									
SIZE No. 2 STOCK.									
No. 2 Stock, 7 Bolt Dies, $\frac{1}{2}$ to $1\frac{1}{4}$ inch									
PRICES OF PARTS OF ARMSTRONG'S STOCKS AND DIES.									
STOCKS, WITH SCREWS, HANDLES AND WRENCH. No. Stock, 0 1 2 2\frac{1}{2} 3 6 7 Price, \$1.50 \$3.25 \$4.00 \$4.50 \$7.00 \$25.00 \$30.00 Takes Bolt Dies $\frac{1}{4}$ to $\frac{3}{4}$ $\frac{1}{4}$ to $\frac{3}{4}$ $\frac{1}{2}$ to $1\frac{1}{4}$									
Takes Bolt Dies $\frac{1}{4}$ to $\frac{3}{4}$									
PRICE OF DIES FOR ARMSTRONG'S STOCKS.									
No. 0. Dies $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{18}$, $\frac{1}{2}$, $\frac{5}{8}$, or $\frac{3}{4}$ complete with Collet,									
PRICES FOR PARTS OF DIES FOR ARMSTRONG'S STOCKS.									
Either No. 1 or No. 2 half of No. 1 Die for pipe,									
BUSHINGS FOR ARMSTRONG'S STOCKS.									
Stock No. 1 2 2 3 3 6 7 7 90.20 \$0.25 \$0.40 \$0.50 \$1.00 \$1.50 No. 0 Collets without Dies, \$0.95.									
COLLAR SCREWS. Stock No. 1 2 2½ 3 6 7									
Price, each, \$0.12 \$0.12 \$0.15 \$0.25 \$0.25									
ADJUSTING SCREWS. Stock No. 1 2 2½ 3 6 7									
Stock No. 1 2 $2\frac{1}{2}$ 3 6 80.20 \$0.20 Price, each, \$0.10 \$0.10 \$0.15 \$0.15 \$0.20 \$0.20									

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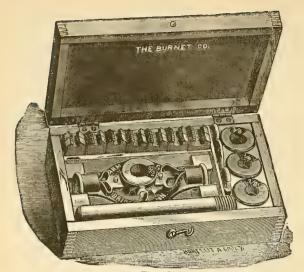


Fig. 351.

ARMSTRONG'S ADJUSTABLE STOCK AND DIES.

FOR THREADING PIPE SIZE NO. 1.

No. 1 Stock, 4 Right hand Pipe Dies, $\frac{1}{8}$ to $\frac{1}{2}$, each . . . \$9.00

No. 1 Stock, 4 each Right and Left Pipe Dies, ½ to ½. 14.00

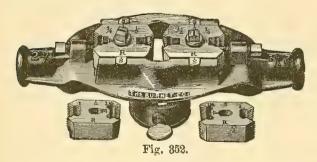
This Stock will also take Bolt Dies as follows:

1 16 3 1 8 3

SIZE NO. 2.

No. 2 Stock 5 Pipe Dies	Right, 1 to 1						•	\$12.00
No. 2 Stock 6 Pipe Dies					4		•	14.00
No. 2 Stock 5 Pipe Dies		1 to	1					20.00
No. 2 Stock 6 Pipe Dies				•		•		23.00

This Stock will also take Bolt Dies, as follows: $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$: and Brass Dies, as follows: $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{4}$.



SIZE NO. 2 1-2. FOR THREADING PIPE.

No. 2½ Stock, 4 Dies, cutting
½, ¾, 1 and 1¼ in. Right
Hand \$12.00

No. $2\frac{1}{2}$ Stock and Dies, cutting $\frac{1}{2}$ to $1\frac{1}{4}$ in. Right and Left 18 00

PRICE OF EXTRA PIPE DIES FOR ABOVE NOS. 1, 2 AND 2 1-2 PIPE STOCKS.

No. 1.	For pipe $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ or $\frac{1}{2}$, either Right or Left		•	•	Each,	\$1.25
No. 2.	For pipe $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ or 1, Right or Left .	q		٠	66	1.50
No. 2.	For brass pipe $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 or $1\frac{1}{4}$, Right or Left			,	66	2.00
No. 23.	For pipe, double ends, $\frac{1}{2} \times \frac{3}{4}$ or $1 \times 1\frac{1}{4}$, either 1	Right	or	Left	66	3,25

Prices for Dies quoted mean set of two pieces numbered 1 and 2.

ARMSTRONG'S ADJUSTABLE STOCK, NO. 3, AND PIPE DIES.

No.	3	Stock,	3	sizes	Pipe	Dies,	14	to	2.	Right	,					\$20.00
6.6	3		4	6.6	6 6	6.6	7	to	2	66						94.00
66	3	66	5	66	66	66	-3	ŧ o	ο,	66	nd Left,	•	3	•	•	24.00
66	9	66	0	66	66	6.6	4	, to	Α,		7 77 01	•	•		•	28.50
	0		3				14	to	2,	· a	nd Left,					32.00
	3	66	4	6.6	6.6	6.6	1	to	2.	66	66					40.00
66	3	66	5	66	66	66	3	to	2	66	66					
							4	00	\sim ,				4			48.50

ARMSTRONG'S ADJUSTABLE STOCK, NO. 6, AND DIES FOR THREADING PIPE, 2 1-2 AND 3 INCH.

Style of No. 3 Stock is same as No. 2½ Pipe Stock.

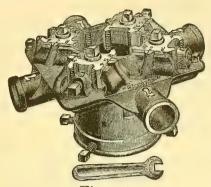


Fig. 253.

No. 6 Stock and Die cutting 2½ x 3 Right hand,		. \$40.00
No. 6 Stock and Die cutting $2\frac{1}{2} \times 3$ Right and Left hand,		. 55.00

The change from $2\frac{1}{2}$ to 3-inch is made by simply reversing the Dies end for end when they will cut to standard sizes without further adjustment.

ARMSTRONG'S ADJUSTABLE STOCK, NO. 7, AND DIES FOR THREADING PIPE; 21-2, 3, 3 1-2 AND 4 INCH.

These Dies come in sets of four pieces. Each piece being double-ended. They have the same Adjustable features and Double Taper as other Dies.

No.	7	Stock	cutting	$2\frac{1}{2}$,	$3, 3\frac{1}{2}, 4,$	Right,		•	•			\$60.00
6.6	7	66	"	$2\frac{1}{2}$	and 3,	6.6						45.00
66	7				·· 4,	6 6						45.00
66	17	66	66	$2\frac{7}{5}$	" 4,	" a	nd]	Left,				92.00
64	7	66	66		and 3 or						•	60.00

PRICES OF EXTRA PIPE DIES FOR ABOVE NOS. 3, 6 AND 7.

The No. 7 Stock has 4 arms.

1	No.	3.	For	pipe	3, 1, 1	$\frac{1}{2}$	or 2-in., s, 2½ x 3-i 2½ x 3	Right	or	Left,	each,			\$4.00
	66	6.	66	- 66	double	ends	$3, 2\frac{1}{2} \times 3$	in., "	66	66	6 6	•	•	15.00
-	66	7.	66	60	66	66	$2\frac{1}{2} \times 3$	66 66	66	66	66			16.00
	66	7.	66	66	6.6	66	$3\frac{1}{2} \times 4$	66 66	66	66	66			16.00

ARMSTRONG'S NO. O, MACHINISTS' SCREW PLATE.

No.	0 Stock	with	Dies	and	Taps	for	threadi	ing	bolts	and	nuts,	7	sizes,	
	$\frac{1}{4}$ to $\frac{3}{4}$,						•			•	•			\$20.0 0

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COMBINATION DIE STOCK,

With Loose Dies, for Threading Pipe.

WHALL MEM INW. LOWIN

No. 0.	With dies cutting $\frac{1}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, Extra dies, right or left	and and	inch	pipe				•	• •		\$ 8 00 9 00
" 00.	Extra dies, right or left	hand	e •		• •	•	•		• •	•	1 00 1 50

MALLEABLE IRON DIE STOCKS,

With Loose Handles and Solid Dies for Threading from Pipe.

	Fig.	355.			
Numbers	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	234
Pipe size of dies	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}$	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1$	$\frac{3}{4}$, 1	§ 1, 1¼	$1, 1\frac{1}{4}, 1\frac{1}{2}$
Outside dimensions of dies	2 x ½	$2\frac{1}{2}$ x $\frac{3}{4}$	3 x 3/4	3 x 3/4	3 x 7/8
Complete with R. H. dies . Extra guides die holders dies, right or left .	\$ 6 50 20 1 00	\$10 00 25 - 1 50	\$ 8 00 25 2 00	\$10 00 30 40 2 00	\$12 00 40 40 2 25
Numbers		3	3	3 A	4
Pipe sizes of dies		$1\frac{1}{4}$, $1\frac{1}{2}$. 2	$1\frac{1}{4}$, $1\frac{1}{2}$, 2	$1\frac{1}{4}, 1\frac{1}{2}, 2$	21, 3
Outside dimensions of dies		4 x 7/8	4 x 1	.4 x 1	5 x 1½
Complete with R. H. dies Extra conides die holders dies, right or left	* * * * * * * * * * * * * * * * * * *	\$15 00 50 50 3 00	\$16 00 50 50 50 3 25	\$18 00 50 50 3 25	\$40 00 1 00 1 00 10 00

Nos. 3, 3A patent stock, and No. 4 have leader screw attachment. No. 4 is provided with 4 sockets for the loose handles to fit into.

ASHCROFT PIPE STOCKS AND DIES.

Numbers											0	1	$1\frac{1}{2}$
Pipe size of dies											$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1$	$\frac{3}{4}$, 1, $1\frac{1}{4}$
Dimension of dies										•	2 x ½	$\frac{2\frac{3}{8} \times \frac{3}{4}}{}$	3 x 3/4
Complete with R.	H.	die	8								\$ 9 50	\$15 00	\$13 5 0
Stocks only	9				e		٠				3 50	5 00	6 00
Extra dies, right o	r 1 ϵ	eft		e							1 50	2 00	2 50
" bushings .				0			0				25	35	45
Die frames				ø	٠							30	40
Numbers			٠			٠					13/4	2	3
Pipe size of dies.	٠,										1, 11, 11	$1\frac{1}{4}, 1\frac{1}{2}, 2$	21, 3
TO!													
Dimension of dies					_ 4_						$3 \times \frac{3}{4}$	$\frac{-\frac{1}{3}}{3\frac{7}{8}} \times \frac{7}{8}$	47 x 11
Complete with R. 1	I. d	dies		٠	•	•		<u>.</u>		•			
Complete with R. I Stocks only	I. d	dies				•		•	•	•	3 x 3/4	37 x 7 8	47 x 11/4
Complete with R. I Stocks only Extra dies, right of	H. d	dies eft		0		•		•	•	•	3 x \frac{3}{4} \$13 50	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	47 x 11 \$43 00
Complete with R. I Stocks only Extra dies, right of bushings .	H. d	dies eft		0		•		•	•	•	3 x \frac{3}{4} \$13 50 6 00 2 50	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
Complete with R. I Stocks only	I. d	dies eft		•			• • • • • • • • • • • • • • • • • • • •	•	• • • •	•	\$13 50 6 00	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\$43 00 25 00 9 00

Nos. 2 and 3 stocks have leader screw attachment.

COPPER-PLATED STEEL OILERS.

Used by the leading machinists and railroads. Heavily copper-plated inside. The outside perfectly resembles 14-carat gold.



Fig. 356.—Railroad Oiler. Nos. 10, 11.

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RAILROAD OILERS.

- No. 10. 1-pint Railroad Oiler, 3\frac{3}{2} in. diameter,
- No. 11. 5 in. high, 12 in. nozzle, . per doz., \$14.00 l-quart Railroad Oiler, $4\frac{1}{8}$ in. diameter, 6 in. high, 18 in. nozzle, . per doz., \$18.00
- No. 111. 2-quarts, 5 in. diameter, 8 in. high, 10 in. or 14 in. nozzle, . . . per doz., \$20.00

ENCINEERS' FILLERS.



Fig. 359.

STEEL FILLERS, COPPER PLATED.

No.	Diameter.	High.	Per doz.
19	1-pint $4\frac{1}{8}$ in.	$3\frac{1}{2}$ in.	\$14. 00
	11/4 42/4	4 66	17.00
210	1-quart .5 "	5 "	20.00
	g " g "	6 "	24.00

ENCINEERS' SETS.

Fig. 360.

STEEL.

COPPER AND NICKEL-PLATED.

WITH ROUND TRAY.

No.					_	~ ~ ~ ~
30.	Five	Pieces,	Copper-p	lated,	\$	5.00
	Six	66	66	66		7.00
	Five	66	Nickel	6.6		7.00
	Six	6.6	66	6 6		10.00

WITH OVAL TRAY.

BURNE! CUMPANT,

No. 35.	Five	Pieces,	Copper-	plated,	\$ 7.00
	Six	6.6	66	6.6	10. 00
	Five	66	Nickel	6 6	8.00
	Six	66	4.6	6.6	11.0 0

MALLEABLE IRON OILERS.

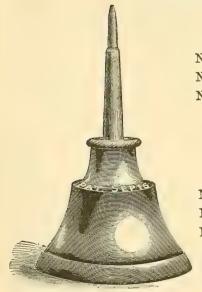


Fig. 361. NEW PATTERN.

OLD STYLE. BRASS BOTTOM.

No.	1,	•		\$3.60	per doz
	2,			4.00	6 6
Vo.				4.40	6.6

NEW IMPROVED PATENT. Brass Bottom.

No. 11,	•	•		\$3.60	per doz.
No. 12,	•		•	4.00	66
No. 13.				4.40	6.6

Extra Tubes, \$1.80 per doz.



CHACE'S OILERS.

C	APA	CITY	7.	ZINC.	ZINC.	BRASS.	COP'R.
No.	Gills				Brass Bot		rass Bot.
00	$\frac{1}{4}$	per	doz.	\$1.00	\$1.25	\$2.00	\$2.25
0	$\frac{1}{2}$	66	66	1.25	1.50	2.25	2.50
1	$\frac{3}{4}$	66	66	1.50	1.75	2.50	2.75
$1\frac{1}{2}$	1	66	66	1.75	2.00	3.00	3.25
2	$1\frac{3}{4}$	66	66	2.00	2.50	3.50	3.75
3	2	66	66	2.25	3.00	4.00	4.25
4	3	66	66	2.75	3,50	4.75	5.00
5	4	66	66	3.50	4.50	6.00	6.25
6	$4\frac{3}{4}$	66	66	4.50	5.50	7.50	8.00

Nos. 00, 0, and 1, one dozen in a box; other Nos., half dozen.

Fig. 362.

2 2 2

PARACON OILERS.

			ZINC.	ZINC.	BRASS.	COP'R.
No.			Tin Bot.	Brass Bot.		Brass Bot.
0	per	doz.	\$2.00	\$2.25	\$3.00	\$3.25
1	66	46	2.25	2.50	3.50	3.75
$1\frac{1}{2}$	66	66	2.50	3.00	4.00	4.25
2	6.6	6.6	3.00	3.5 0	4.50	4.75
3	66	66	3. 25	4.00	5.25	5.50
4	66	66	3.75	4.50	6.00	6.25
5	66	66	4.50	5. 50	7.00	7.25
6	66	66	5. 50	6.50	8.50	8.75



Fig. 363.

BOLT AND RIVET CLIPPERS.

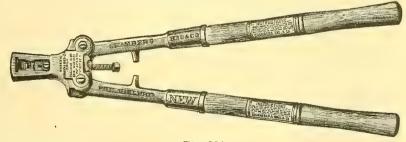


	Fig. 364.		EACH.
	For \(\frac{3}{8}\)-inch bolt or less, for carriage work, harness makers, etc., \(\).		. \$7.50
	For \(\frac{1}{2}\)-inch " wheelwrights, machinists, founders, etc.,		. 9.00
	For \(\frac{5}{8}\) inch " car builders, and heavy work generally,		. 12.00
No. 4.	REGULAR to cut 3-inch,	0	. 15.00
	The above Clippers cut flush with the work.		

"SPECIAL No. 4," to cut $\frac{3}{4}$ -inch look or stay-rod $\frac{1}{8}$ -inch above the surface of the work through which it projects, thus always leaving $\frac{1}{8}$ inch for riveting. When No. 4 is wanted, specify whether "Special" or "Regular." Each tool is tested and guaranteed right in every respect.

STEEL WIRE NAILS.

Length		Per	Length Inches.	No.	Per Pound.	Length Inches.	No.	Per Pound.	Length Inches	No	Per Pouud.
Inches.	No. 19 20 21 22	\$1.00 1.25 1.55 1.90	1	$ \begin{array}{c c} & 16 \\ & 17 \\ & 18 \\ & 19 \end{array} $	\$0.36 40 43 53		6 7 8 9	\$0.28 28 28 28 28	$\frac{2^{3}}{4}$	{ 12 13 14	\$0.27 28 29
3/8	$ \left\{ \begin{array}{c} 18 \\ 19 \\ 20 \\ 21 \\ 22 \end{array} \right. $	80 90 1.00 1.25 1.55		$ \begin{bmatrix} 10 \\ 11 \\ 12 \\ 13 \\ 14 \end{bmatrix} $	30 30 30 31 32	134	10 11 12 13 14 15 16	28 28 28 28 29 30 32	3	$ \begin{cases} 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \end{cases} $	25 25 25 25 25 25 25 25 26
1/2	$\left\{\begin{array}{c} 16\\17\\18\\19\\20\\21\\22\end{array}\right.$	55 60 65 75 85 1.00 1.25	118	$ \left\{ \begin{array}{c} 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \end{array} \right. $	32 35 40 43 53		$ \begin{bmatrix} 7 \\ 8 \\ 9 \\ 10 \\ 11 \end{bmatrix} $	38 27 27 27 27 27		$\begin{bmatrix} 12 \\ 13 \\ 14 \end{bmatrix}$	27 28 29 25 25 25
<u>\$</u>	14 15 16 17 18 19 20	43 45 50 52 58 65 75	114	8 9 10 11 12 13 14	29 29 29 29 29 30	2	11 12 13 14 15 16 17	28 28 28 29 30 35 38	314	$ \left\{ \begin{array}{c} 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \end{array} \right. $	25 25 26 27 28 29
	21 22 13 14	85 1.10 36 38 38		15 16 17 18	32 34 39 43	2 <u>4</u>	$ \left\{ \begin{array}{c} 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \end{array} \right. $	27 27 27 27 27 27 28	35	$ \begin{cases} 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{cases} $	25 25 25 25 25 25 26
34	15 16 17 18 19 20 21	42 43 46 52 60 70 85	13	9 10 11 12 13 14 15	29 29 29 29 30 31 32	~4	12 13 14 15 16	28 28 29 30 35	4	$ \begin{bmatrix} 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \end{bmatrix} $	27 25 25 25 25 25 25 25 26
78	11 12 13 14 15 16 17	33 33 34 35 36 39 43		$\begin{bmatrix} 16 \\ 17 \\ 18 \end{bmatrix}$	34 39 43 29 29 29	21/2	$ \begin{cases} 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 12 \end{cases} $	26 26 26 26 26 27 27	41/2	$\left\{\begin{array}{c}5\\6\\7\\8\\9\end{array}\right.$	25 25 25 25 25 25 25
	18 19 20	45 56 67	11/2	9 10 11 12 13	29 29 29 29 29		13 14 15 6	28 29 30	5	$\left\{\begin{array}{c} 5 \\ 6 \\ 7 \\ 8 \end{array}\right.$	25 25 25 25 25
1	11 12 13 14 15	30 30 31 32 33		14 15 16 17 18	30 31 33 38 43	23/4	7 8 9 10 11	26 26 26 26 26 27	5½ 6	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	25 25 25 25 25

For Barbed Nails, add 2 cents per lb. to list.
For Special Heads, add 2 cents per lb to list.
For Special Points, add 2 cents per lb. to list.
For Annealing, add 2 cents per lb. to list.
For Nails, combining Special Heads and Points, add for each.

Nails packed in ½ lb. papers, add 4 cents to list. Nails packed in ½ lb. papers, add 8 cents to list. Nails, in 25 or 50 lb. boxes, deduct 1 cent from list.

Nails, in 100 lb. kegs, deduct 2 cents from list Tinned or Galvanized Nails at Special Prices. PER CENT.

DISCOUNT,

Prices subject to change without notice.

STANDARD STEEL WIRE NAILS AND CUT NAILS.

	P	RICE	LIST.					
Size. Lengt	il. the S	Base.	S	Size.		Length of Nail.		Add to the Stand- ard Base.
COMMON, FENCE, FLO		ADS			BAI	RREL NA	ILS.	
AND SHINGLE		D				3 inch		. \$1.00
60d 6 inch 50d 5\frac{1}{2} inch		Base.				$ \begin{array}{c} \frac{3}{4} \text{ inch} \\ \frac{7}{8} \text{ inch} \\ 1 \text{ inch} \end{array} $		85
30d and 40d 4 in. and	l 5 in.	Base.				1 inch		70
20d 4 inch		Base.	•			$\frac{1\frac{1}{8}}{1\frac{1}{4}}$ inch		.60
12d and 16d $3\frac{1}{4}$ in and 10d 3 inch	1 3½ in.	\$0.05				13 inch		50
8d and 9d 2 in. and	$12\frac{3}{4}$ in.	.10				$1\frac{1}{2}$ inch		
6d and 7d 2 in. and	$12\frac{1}{4}$ in.	.20						
$\frac{4d \text{ and } 5d \dots 1\frac{1}{2} \text{ in. and}}{3d \dots 1\frac{1}{4} \text{ inch}}$	1 14 in.	.30 .45			SLA	TING NA	ILS.	
2d 1 inch		.70	2d .			1 inch		\$0.80
BARBED CAR AND	COMMON.		3d .			$1\frac{1}{4}$ inch		.60
15c. per keg advance o	ver common.					1 inch		.40
CASING, SMOOT			5d .		* *	$1\frac{3}{4}$ inch 2 inch		40
20d and 40d 4½ in. and		\$0.15	· ·	• •		~ Inch		, .00
30d 4 inch		.15		BAR	BED	ROOFIN	G NAI	ILS.
$12d \text{ and } 16d 3\frac{1}{4} \text{ in. and}$	$1 \ 3\frac{1}{2} \ in.$.15				9		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 93 in	.15				$\frac{3}{4}$ inch $\frac{7}{8}$ inch inch		• \$0.75
6d and 7d 2 in and	$1 \frac{\tilde{\lambda}_4}{2\frac{1}{4}}$ in.	.35	2d .			1 inch		65
$5d \cdot 13 \text{ inch}$.50	3d .			1# inch		55
$\frac{4d}{3d}$ $1\frac{1}{2}$ inch $\frac{1}{4}$ inch		.50 .70	4d .			$1\frac{1}{3}$ inch $1\frac{3}{4}$ inch		45
$3d \dots 1^{\frac{1}{4}}$ inch		1.00	6d .			2 inch	• •	45
(Barbed Box, 15c. ac	dditional.)							
SMOOTH FINISHIN					TOB	ACCO N.	AILS.	
2d 1 inch		\$1.15	4d an	d 5d		1½ in. an	d 13 in.	. \$0,30
$3d \dots 1^{\frac{1}{4}}$ inch		.85	6d an	d 7d		2 in. an	$d 2 \frac{1}{2} in$	
$\frac{4d}{5d}$ $1\frac{1}{2}$ inch $\frac{1}{3}$ inch		.65 .65	8d an	d 9d		$2\frac{1}{2}$ in. an	$d_{2\frac{3}{4}}$ in	10
6d and 7d 2 in. and	l 2‡ in.	.45	10d .			3 inch	+ 3	05
8d and 9d 2\frac{1}{2} in. and	$1 \ 2\frac{3}{4} \ \text{in.}$.35			CLI	NCH NA	ILS	
10d 3 inch		.25 .25			011	.1.022 111	· LLIV	
12d and 16d $3\frac{1}{4}$ in. and 20d 4 inch	1 0½ III.	.25	2d .	0 0		1 inch		\$1.05
Barbed Finishing Nails, 1		1	3d .	d 5d		$\frac{1\frac{1}{4} \text{ inch}}{1\frac{1}{2} \text{ in. an}}$	d 13 in	85
FINE NAIL		/				2 in. an	$d 2^{\frac{7}{4}} in$	55
2d 1 inch		\$1.00	8d an	d 9d		$2\frac{1}{2}$ in, an	$d 2\frac{3}{4} in$	45
3d		.50	10d .			3 inch	3 21 :-	35
4d $1\frac{1}{2}$ inch		.50	12d an 20d	a roa			a 35 m	
LINING NAI	LS.		2000					•00
$\frac{3}{4}$ inch		\$1.20			WI	RE SPIK	ES.	
		1.00	A 11!-	*0.7				00.40
1 inch	• • •	.80	All SIZ	ces .		3 in. to	9 in	*0.10

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NAIL PULLERS.



Fig. 365.

Large or No. 2.—Weight 5 pounds, 3 doz. in a case. List, per doz., \$18.00. Small or No. 3.—Weight 3 pounds, 1 doz. in a case. List, per doz., 15.00.



Fig. 366.

SILVER	OR	JAPANNED	HEADS	5, 3	to	12	0Z.,	full	count	(100)	per	paper,	\$0.08
. 6	6.6	6.6	66	14	to	24	66	66	6.6	(100)	6.6	66	.09
6.6	44	66	6.6	3	to	12	66	short	, 66	(75)	66	66	.06
4.6	66	66	6.6	14	to	24	66	6.6	6.6	(75)	6.6	66	.07
/T1		wa in a nackaa	e Shor	t 00	m	+ 57	vill 1	20 00	nt un	LARE OF	har	wise or	dered.

Finishing Nails.

Inch, \(\frac{3}{8} \) \(\frac{1}{2} \) \(\frac{3}{8} \) \(\frac{3}{4} \) \(1 \) \(\frac{1}{4} \

In half and one pound papers or in bulk.

Inch, $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{8}$ $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ 2 Per Pound, \$0.39 \$0.32 \$0.27 \$0.24 \$0.23 \$0.23 \$0.23 \$0.23 \$0.23 \$0.23 For $\frac{1}{8}$ pound papers, add 4 cents per pound to list.

DOUBLE POINTED TACKS. 10 11 12 14 Twelve Papers in a Package. Fig. 368. Nos. 9 10 11 12 14 Blued (100 count), per dozen, \$1.20 \$1.30 \$1.40 \$1.60 \$1.85 Tinned (100 "), \$1.35 \$1.45 \$1.60 \$1.85 \$2.15 In Bulk, Nos. 9 10 11 12 14 Blued. per pound, \$0.46 \$0.42 \$0.41 \$0.40 \$0.39 Tinned 66 \$0.55 \$0.51 \$0.50 \$0.49 \$0.48 100 pounds each size in case. In 25 pound boxes, add 1 cent per pound to list; in 10-pound boxes add 3 cents.

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Same list as Swedes Tacks.

ESTABLISHED LENGTHS OF TACKS.

COPPER. **SWEDES** IRON AMERICAN

Ounce. 2, 24, 8, 10, 12, 14, 16, 18, 20, 22, 24, 1, 11, 3, 4, 6, $\frac{12}{16}$ 18 16 14 15 $\frac{16}{16}$ 18 Inch. $\frac{7}{32}$ 4 16 5 16 6 1 6 $\frac{7}{16}$ 8 16 $\frac{10}{16}$ $\frac{11}{16}$ $\frac{3}{16}$

CIMP AND LACE TACKS.

Ounce. 6, 8, 1, 12, 2, 24, 3, 4, 10, 12, 18, 14, 16, 20, Inch. $\frac{10}{16}$ $\frac{11}{16}$ $\tfrac{12}{16}$ $\frac{18}{16}$ $\frac{7}{32}$ 16 16 16 16 $\frac{8}{16}$ 9 16 $\frac{14}{16}$ 15 16

LARGE HEAD CARPET TACKS. 10 12 14 Oz., 6

Fig.	370.
------	------

Swedes	Iron	Carpet	Tacks,	With	Flat	Heads.

			Per doze	en paper	S.					
Ounce,				10					20	
Half weight, .	. \$2.30	2.90	3.50	4.10	4.70	5.30	5.90	6.50	7.10	
" Tin'	d, 3.10	3.80	4.70	5.60,	6.50	7.40	8.30	9.20	10.10	
One dozen papers in a package.										

American Iron Carpet Tacks, With Flat Heads. Per dozen papers.

					T er dozen	papers.				
Ounce,		,		4	6	8	10 -	12	14	16
Half weight,	, .			\$1.50	1.80	2 .20	2.60	3.00	3.40	3.80
66 67	Tin'd,			2.10	2.50	3.00	3.65	4.30	4.95	5.60
Quarter "	6.6			.85	1.00	1.20	1.40	1.60	1.80	3.00
One dozen papers in a package.										

Steel Carpet Tacks, With Flat Heads. Per dozen papers.

				L. C. C. C. C. L.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Ounce,			6	8	10	12		
2 oz. papers,		,	\$1.20	1.20	1.20	1.20	1.20	1.20
4 " "			2.20	2.20	2.20	2.20	2.20	2.20

Tinned Steel Carpet Tacks, With Flat Heads. Per dozen papers.

Ounce,	٠		6	8	10	12	14	16
2 oz. papers,			\$1.60	1.60	1.60	1.60	1.60	1.60
4 "	٠		3.00	3.00	3.00	3.00	3.00	3.00
			One doz	zen papers in	a package.			

Copper Tacks.

						сен раре					
Ounce,	4			1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4	6	8
Full weight,	٠	٠		\$1.12	$1.\bar{3}0$	1.40	$1.\overline{60}$	1.80	2.00	2.52	3.36

CIMP TACKS.

Oz., 2 2½ 3 4 6 8

LACE TACKS.

MO BE EN CH

THE NAME AND PARTY OF THE PARTY OF THE PARTY.



Fig. 372.

Fig. 371.

Cimp and Lace Tacks.

Per dozen papers.

_						Papara					
				1	13	2	$2\frac{1}{2}$	3	4	6	
Half weight,				\$1.85	2.05	2.20	2.40	2.55	2.85	3.45	
66 65	$\operatorname{Tin'd}$			2.75	2.85	3.00	3 10	3,35	3.65	4.35	
Ounce,			٠	8	10	12	14	16	18	20	
Half weight,				\$4.10	4.75	5.45	6.10	6.90	7.70	8.50	
66	Tin'd	,	,	5 .05	6.10	7.15	8.20	9.30	10.50	11.70	
One dozen papers in a package.											

SPRING COTTERS.



Fig. 373.

PRICE PER THOUSAND.

All measurements are made under the eye.

Wire Gauge	13	12	11	10	9	8	7	6	5	4	1				
Diame'er.	3 2	67	18	9	5 3 2	1 1 6 4	3 I 6	13	- 7 3 2	1 .	5 1 6	8	7 76	1 2	5/8
Length.	1														
1/2	\$3.75	\$4,25	\$4.75	\$ 5 0 0	\$5.50	\$6.00									
34	4.40	4.90	5.50	5.80	6.50	7.20	\$7.50	\$8 00			 				
1	5.00	5 50	6.25	6.60	7.50	8.40	8.80	9.50	\$12.00	\$15.00	\$20.50				
19	5.60	6.10	7.00	.7.40	8.50	9.60	10.10	11.00	13.50	16.50	22.75				
112	6.20	6 70	7.75	8 20	9.50	10.80	11 40	12.70	15.00	18.00	25.00	\$38.50			
13%	6.80	7.30	8.50	9.00	10.50	12.0)	12.70	14.00	16.50	20.00	27.25	30.75	\$39 00		
9	7.40	7.90	9.25	10.00	11.50	13.20	14.00	15.50	18.00	22.00	29.50	33.5 0	43.50	\$52.50	
214			10.00	11.00	12 50	14.40	15.30	17.00	19.50	24.00	31.75	36.00	47.25	57.75	
£1 ₂			10.75	12.00	13.50	15.60	16.80	18 50	21.00	26,25	34.00	38.75	51.00	63.00	
234							18.30	20.50	23.50	28.01	36.75	40.50	54.75	68.00	
3				1			19.80	22.50	25.00	30.00	39.75	43.25	58.50	73.50	\$112.50
314										32.00	42.75	46.00	62.25	78.75	118 50
312	ļ									34.00	45.00	48.75	66.00	81.00	124.50
334										36.50	47.25	51.75	69 75	89.25	130.50
4										39.00	19 50	54.75	73.50	94.50	136.50
5													88.50	115.50	160.50
С						1		1		1				136 00	181 50

CELLAR BOX PINS OR COTTERS. PRICE PER THOUSAND.

DIA	METER	2,				3/8	76	1/2	5 28	3 4
Length 7 Inc	ches					\$ 65.00	\$ 84.00	\$108.00	\$146.00	\$263.00
						75.00	99.00	125.00	169.00	293.00
U	. 6					85.00	114.00 129.00	$142.00 \\ 159.00$	$192.00 \\ 215.00$	323.00 353.00
10		•	•	•	•	$95.00 \\ 105.00$	144.00	176.00	238.00	383.00
r v	6 6					115.00	159 00	193.00	261.00	413.00
10	. 6					125.00	174.00	210.00	284.00	443.00
1.4					٠	135.00 145.00	189 00 204.00	227.00 244.00	307.00	473.00 503.00
117	. 6		٠	•	٠	155.00	219.00	261.00	353.00	533.00
_	i 6	:				165.00	234.00	278.00	376.00	563.00
18						175.00	249.00	295.00	399 00	593.00



RIVETED FLAT KEYS.

Over forty differer t sizes and patterns. Prices upon application.

Always give measurements as per illustration and thickness of key required.

FLAT SPRING KEYS.



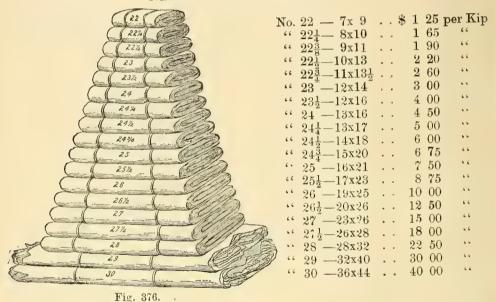
Fig. 375.

PRICE PER 1,000. Length $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ 2 $2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$ 3 $3\frac{1}{4}$ Length $2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$ 3 $3\frac{1}{4}$													
Longth	11	11,	13	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	31	31			
	01.00	00 55	04.50	96 95	-98.00	29.75	31.50	$\partial \partial_{+} \Delta \partial_{-}$	a *				
			00 05	98 00	-30.75	-33.25	36.00	00.00	御井1・20	\$\pi \text{TO. 10}			
3	9 D			34.25	36.75	39.25	42.00	44.75	47.25	50.00			
4		•											

CHAMOIS SKINS IN KIPS (30 PIECES).

These Goods are Cut and Trimmed, Each Skin the Same Size.

SIZES AND PRICES PER KIP.



BURNET COMPANT, NE

ROUGE OR POLISHING CHAMOIS.

FOR POLISHING METAL AND PLATED WARE WITHOUT SCRATCHING.

The best polisher known, always ready for use, put up in one dozen packages.

												3	Per Doz.
No.	60.	5x 7						0		2			\$0 50
66		8x10			c		۰		0				75
66	62.	10x13											1 25
		12x14											
66	64.	13x17											
		16x21	۰										4 8 6
66	66.	19x25	*	a	0	,		٠	٠	•	^		6 00

Fig. 377.



Fig. 378.



Fig. 379.

STEEL WIRE CASTING	BRUSHES.
--------------------	----------

							Pe	r D	oz.							Per Doz.
4	1 r	ow	s 2	inel	h wire			\$5.	50	5	rows	3	inch	wire		\$ 7.50
4	1	4.6	24	4.6	1.1				00	5	64	31	4.4	6.6		8.00
4	1	6.6	3	4.6	6 6		•		50	ã	6.4	4	4.6	6.6		8.50
4	1	4.4	31		4.4	,			.00	õ	4.6	43	6.6	6.		9.00
	1	4.4	4		+ 6	•			50	ā		$\hat{5}^2$	4.6	4.6		9.50
	1	4.6	Î.			•	•		.00	6	. 4	3	6.	4.6		9.00
	1	4.4	5		6.4	•	•		.50	6	6.5	4	6.4	6.6		10.50
	5	4.6	9	. 6	4.4	•	•		50	6	4.4	5	4.6	4.6		12.00
	5	4.6	2		4.6	•	•		.00	(/		0			• •	1.0.00
	,		~ :	2		•	٠.	• •	.00							
	1 ı	OW	21	inch	wire									. P	er doz	., \$3.00
	2		o Í	4.6	4.4										6 6 6	4.00
	3	4.6	21	4.4	4 -											5,00
	4	6.6	51	4.6											4 4 6	6.00
	$\hat{5}$	6.6	23	6.4	4.6										4.4	7.00
			- 2										•	•		
1	43	ine	ch n	wire										. Fe	r doz.	, \$ 7.00
	6	£ (4	6.6										6.4	4.6	9.00
	ġ	6.6	6	66 /	James 1	andl	001								4.4	12.00



HARD FOUNDRY BRUSHES.

With handle				Per	doz.,	\$7.50
Without handle				"	6.6	7.00





SOFT FOUNDRY BRUSHES.

No		. 38	55	45	65	75
Inch Block		. 8	9	9	9	$10\frac{1}{2}$
Per Dozen		\$7.23	8.00	8.50	9.60	12.80





Fig. 382.

FOUNDRY BENCH BRUSHES.

No. 3x, Per doz., \$6.00

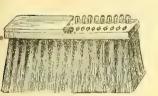


Fig. 383.

STANDARD RATTAN BROOMS.

12	inch	4	Rows						Per	doz.,	\$4.50
14	4.6	4	4.4						6 -	+ 6	5.00
14	6.4	ă	4.6			•			٤.	6.	5.50
		6							4.6	- 4	6.00
16			4.6		•				6.4	< 6	5.50
16				•	•	•			6.4	* -	6.00
16		6		•					4.6	. 6	6.50
14		4		extra	full				6.6	4	5.50
~ ~	4.6	4		extra:			4		64	6	6.00
16				Bosto					6.6	6.5	6.00
16		4						•	6 4	4.3	8 50
16	4.4	4	+ 6	CO100	TallO	11 .					0 1)(/

STEEL BROOMS.

19	linel	Bloc'	z. 4	rows		Per	doz.,	\$12.00	12 i	inch	Block	:, 6:	rows		Per	doz.,	\$14.00
14	1 "	1.6	4			4.6	4.4	14.00	14	4.6	b b	6	6.6			4.6	16.00
16	3	4.4	4	4.5			6.6	16.00	16	٠.	4.4	6	* *	٠	16	6.6	18.00

To When handles are required, add 40 cents per dozen net — extra.





SCRUB BRUSHES.

One Piece.

Solid Block.

PACKED ONE DOZEN IN A BOX.

		Fig. 390.						
No.	31.	Single end, 8 inch block, all	white,				Per doz.,	\$0.75
No.	33.	Single end, 10 inch block, all v	vhite,					.80
No.	20.	Single end, all white,					6.6	1.25
No.	47.	Double end, all white,		,			4.4	.95
No.	53.	Double end, all white,					66	1.25
No.	26.	Double end, all white, .					66	1.60
No. 5	208.	Double end, all white,					66	1.50
No.	600.	Double end, all gray,		٠			66	1.50
No.	29.	Double end, gray, very stiff,					66	1.75
		TWO-PIECED,			MADE.			
No.	116.	Extra gray bristles,					Per doz.,	\$4 50
No.	117.	Extra gray bristles,			0		66	5.00

McLAUCHLIN'S RAILROAD CAR-WASHER.

Nos. 1 and 2 for Steam Roads, Nos. 3 and 4 for Electric Roads.



Fig. 391.

CERT CORTER : TEN

No. 1 2 3 4 Per doz., \$30.00 24.00 21.00 15.00

ROUND CAR WASHERS.

Made of the best quality of bristles, fastened with copper wire. The block is also surrounded by a subber band.

 No.
 14
 15
 16

 Per doz.,
 \$37.50
 47.50
 52.50

 No. 112.
 Mixed gray stock,
 .
 Doz., \$28.25

OBLONC CAR WASHER.

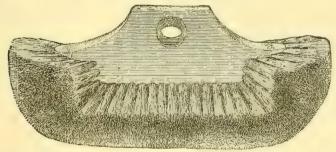


Fig. 392.

Many of the Leading Railroads use these Car Washers.

AI COPPER-FASTENED BLOCKS, WATERPROOF.

No.	80.	All gray bristles,			٠					Per doz,	\$33.75
No.	95.	Black Horse Hair,								66	37,50
Extr	a.	Gray bristles case	d with	white	,	•	٥			6.6	41.25
No.	90.	Black Horse Hair,						3		66	43.25
No.	100	Black Horse Hair,	, ,			9	٥		6	66	50.00

FLAT VARNISH BRUSHES.

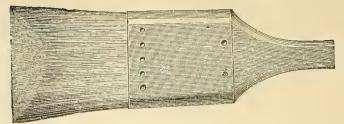


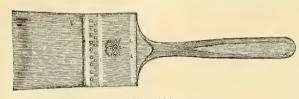
Fig. 393.

QUALITY C. CEDAR HANDLES.

A good brush, perfectly made, and suitable for all ordinary varnishing.

Size Inches, 1 $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 Per dozen, \$1.75 \$2.80 \$3.85 \$5.25 \$7.25 \$12.50 \$16.75

FLAT VARNISH BRUSHES.



QUALITY E-E.

Chiseled edg . Double thick.

SENSIBLE CEDAR HANDLES.

Size Inches, Per Dozen, Fig. 394.

1 1½
\$3,60 \$5.75

 $\begin{array}{ccc} 2 & 2\frac{1}{2} \\ \$8.40 & \$10.50 \end{array}$

3 \$14.00 $3\frac{1}{2}$ \$19.00

\$28.00

FLAT VARNISH BRUSHES.



QUALITY PALACE.

Made of fine French bristles, extra heavy, chiceled edges.

Brass ferrules. Doubled nailed.

POLISHED HANDLES.

Size Inches, Per Dozen, Fig. 395. 1 \$5.75

1½ \$8.40

\$10.50

 $\frac{2\frac{1}{2}}{$14.75}$

3 \$21.00



OVAL PAINT OR VARNISH BRUSHES. QUALITY E-F.

All white bristles. Fine quality. Beaver tail handles. Narrow ferrules. Wire bound.

Fig. 396.

No. 6 5 4 3 2 1 0 2-0 3-0 4-0 5 0 6 0 7-0 8 0 Per Doz. \$5.50 6.50 7.50 8.60 10.50 12.00 14.00 16.75 19.50 23.00 30.00 34.00 42.00 48.00



OVAL VARNISH BRUSHES. QUALITY SABLE. CHISELED.

Made of best black bristles, soft and very elastic. Suitable for finest work. Large Sizes.

Fig. 397. NICKEL FERRULES.

No. . 0 2-0 3.0 4-0 5-0 6-0 7-0 Per Dozen, \$9.00 \$12.00 \$14.50 \$18.00 \$21.00 \$27.00 \$33.00 No. . Per Doz., No. . Per Doz.,

No.

No.

Per Doz.

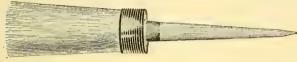
Per Doz.,



PAINT BRUSHES. - QUALITY B.

This we warrant a good brush, free from Tampico, and a brand which we warrant to give perfect satisfaction.

rig. 3	98.		GOOD FO	R SHIP USE.	WIRE BOUND.	
6,	5,	4,	3,	2,	1,	0,
\$4.00	5.25	6.35	8,00	9.75	11.00	13.50
2-0,	3-0,	4-0,	5-0,	6-0,	7-0,	8 0,
\$15.75	18.00	23.00	26.50	33.00	36.50	44.00



21.00

· 4-0.

\$37.00

25.50

Fig.

PAINT BRUSHES.

QUALITY E-E.

Made from all fine white Russia Bristles. Suitable for railroads.

50.00

8-0.

59.00

6	399.				WIRE	BOUND.
	2-0,	3-0,	4.0,	5-0.	6-0.	7-0.

37.00

30.00



0,

\$17.00

PAINT BRUSHES.

QUALITY D-X-X.

Made from selected Russia stock, and warranted to give satisfaction to painters.

44 00

	TAINE OF AIRE ROUNT).
5-0,	6-0,	7 0,
43.00	52.00	58.00



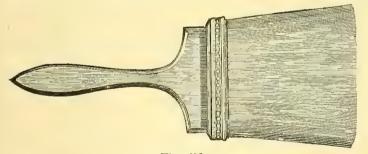
Fig. 401.

SASH TOOLS,-QUALITY GLOSS.

The finest sash tool made.

TWINE BOUND.

No. 1. 2. 3, 4. 5, 6, 8. 9. 10. 9,50 3.50 4.255.00 6.15 6.7511.75 Per Doz., \$1.95 2.85 8.40

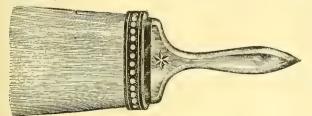


WALL OR FLAT PAINT BRUSHES.

QUALITY RUSSIA.

Made of pure foreign bristles, all white.

Fig. 402. Size, Inches, 4, $5\frac{1}{5}$, 3, 31, 41, 5, 28.50 34.5017.5022.5025.50 14.50 Per Doz., \$12.50



WALL OR FLAT PA:NT BRUSHES.

QUALITY STUCCO.

Made of pure white Russia br stles.

LEATHER BOUND.

No. 2, 4-in. No. 3, 4½-in. 31.00

Fig. 403. No. 0, 3 in. \$21.00

No. 1, $3\frac{1}{2}$ -in. 25.00

115

Per Doz.,

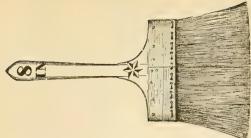
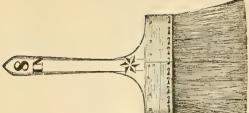


Fig 404.



Size. \$23 00 6 inch 30 00 7 35 00 8 QUALITY C-C. Per Doz. Size. \$11 00 6 inch 13 50 16 50 66 8

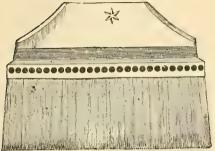
KALSOMINE BRUSHES QUALITY C-B. Made of all white stock.

Per Doz.

WHITEWASH HEADS.

QUALITY B.

Gray center, cased with fine white bristles. Leather Bound.



Tig. 405.

		5, 100.									
No.	4	5	6	7	8	9	10	11	12	13	14
Width, Inches. Per Doz.	5 \$5.50	$\frac{5\frac{1}{2}}{6.25}$	$\frac{6\frac{1}{2}}{7.00}$	7 8.00	$\frac{1}{2}$ 9.00	8 10.00	$\frac{8\frac{1}{2}}{11.50}$	$\frac{9}{12.50}$	$9\frac{1}{2}$ 13.50	10 15.50	$10\frac{1}{2}$ 16.50

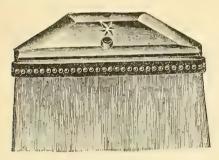


Fig. 406

WHITEWASH HEADS. QUALITY D-C.

Made of gray mixed stock, extra long. Cased with pure gray bristles.

Leather Bound.

No.		Wi	dth	of]	Brush.]	Per Doz.
$7\frac{1}{5}$				7	inch				٠	\$15 00
8				$7\frac{1}{2}$	66					16.50
$8\frac{1}{2}$				8						19.00
9				81	66 ,					21 50
$9\frac{1}{2}$	٠	٠		9	66		•	•		24.00

WHITEWASH HEADS.

QUALITY C-M.

All white stock, cased with fine white bristles. Will always be sent metal bound unless otherwise ordered.

No.	Wi	dth	of	Brush.]	Per Doz.
7			7	inch		٠		\$27.00
8			8	4.6			,	33.00
								40.00

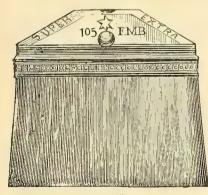


Fig. 40%.

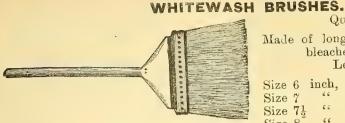


Fig. 408.

QUALITY RUSSIA.

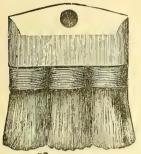
Made of long stock, cased with unbleached Russia bristles.

Leather Bound.

Size	6	inch,		Per doz.,	\$13.00
Size		66		6.6	16.00
Size		6.5		6.4	19.00
Size	- 44	66		66	21.00

QUALITY B.

	Made of gray	mixed	stock, cased	with	white !	oristles.	Leatner	Doung.	- 1
37	6	7	Q	Q	10	11	12	13	14
No.	0	· ·	0	9	10	0	01	9	91
Width	1 , Inches, $5\frac{1}{2}$	6	$6\frac{1}{2}$	1	$7\frac{1}{2}$	8	0-2	10.00	01 00
Por	1, Inches, $5\frac{1}{2}$ loz., \$9.00	10.50	11.50	12.50	14.00	15.00	17.00	19.00	21.00
1 61. 0	τομ., φοισσ	10.00							



Siże, Per doz.,

Size, Per doz.,

Size, Per doz.,

Fig. 409.

ROOF BRUSHES.

QUALITY	В.	
2 Knots.	3 Knots.	4 Knots.
\$16.80	. 22.50	31.00
QUALITY	v C.	
2 Knots.	3 Knots.	4 Knots.
\$22.00	28.00	36,00
QUALITY	Extra-	
2 Knots.	3 Knots.	4 Knots.
\$33.00	44.00	58.00

Nailed flat roof brushes always in stock.



Fig. 410.

SHORT HANDLE TAR BRUSHES. No. 0, Per dez., \$6.80



LONG HANDLE TAR BRUSHES.



STENCIL BRUSHES.

QUALITY G. Gray Bristles.

No. Per doz., \$1.50 1.60 1.85 2.10 2.30 2.50 2.90 3.25 3.70 4 00 4 60 5.25 8.40



MARKING BRUSHES
"BEST."
Round or Flat.

Vollow	Polished Handles.	Nothing Bette	r Made.
3	4	5	6
20.30	23.00	25.00	29.20
29.30	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Per gross,	\$25,00
117		- C	
117			

Fig. 413.
No. 1 2
Per gross, \$15.20 17.75
Assorted, 1 to 6, round or flat,



79.77	Fig. 414.		Pe	r I)oz	en		٠	\$14 75
No. 55,	All white bristles, per dozen .								17 50
No. 6.	Gray bristles, cased with white,	per dozen							23 50



Fig. 415.

No				1	2	3	4
Per Dozen.	•	•	•	\$6.90	\$7.25	\$8 75	\$9.80



		Fig. 4	116.			" 4 and	15 are all	white bris.!e	S
No.					1	2	3	4	
Par Dozen					\$11.00	\$12.50	\$15.00	\$16.00	ğ
	/6			Mary State					



Fig. 417.

NT.								TOOLOT DIOOK	•
No.	•	•	•	•			1	2	2
Per Dozen	•	٠				•	\$12.00	\$13.25	\$14 50

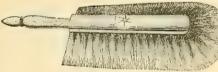


Fig. 418.

78.70		0			
No.	1	•)	3	1.20	
T)		~	•)	170	
Per Doz.	00 H=	77.50	120 00	- 0	
T CI DOZ.	DO. (3)	11.25	-30° -00°	99 97	
			50.00	~ () . ()	

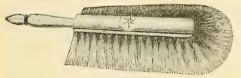


Fig. 419.

No.								IL ILIUII.	
INO.							19 1	NO.	to a co
Per Dozen		•	•		•	•	6 ±	72	73
r er Dozen					_		\$5.75	AC NE	A No. o. w
			•	•		•	фэ. (Э	\$6.75	\$7.25

PAINTERS' DUSTERS.

No. 17. Long stock, whi e outside.

Per I)oz	en					\$11	.00
No. 4		All	.br	istl	es,	gr	ay m	d-
dle,								
Per I								
							17	50

DUSTING BRUSHES.

QUALITY A.

All bristles, gray middle, cased with white

Polished Block

1	2	3	4
\$6.90	\$7.25	\$8.75	\$9.80

DUSTING BRUSHES.

QUALITY E.

Made on ornamental Block. Nos. 1, 2 and 3 are gray bristles, cased with white.

5

\$18.75 DUSTING BRUSHES.

QUALITY BOSTON.

Gray bristles, cased with white, Polished Boston Block

FACTORY AND MILL DUSTERS.

These bru hes are made of the best bristes and by best workmen, specially for Mill, Factory and Railroad use, and are very ful

62 69 70 79 31.80 35.50 35.00 40.00 41.25 45.00

DUSTING BRUSHES.

QUALITY W-D.

Ornamental Backs. Wire Drawn.

All Black Hair

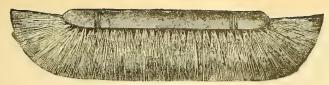


Fig. 420.

FLOOR BROOMS.

All our brooms are made on polished blocks, with threaded handles. Single or double hole blocks.

No.	22, 15	inch	block											9		Per	Dozen,	\$52.50
No.	25, 12	,	4.6	heav	Ţ											* *		58.75
No.	26, 14	4.6	4.4	6.4									,			6.6	4.4	70.00
No.	50, 14	: ''	+ 6	6.6	All	Bris	tles	Doul	ole	Hole	Block					4.4	4 €	56.25
No.	60, 16	- 66	6.6	b 6	4.4	6.6		4.6		4.6	h h					+ 6		82.50
	70, 18	* * *	4.6	4.4	* *	4.4		6 -		h h	b b						k	91.25
No.	300, 14	6.6	6.6	4.4	for	Jani	ors	use				0	۰			5.4	6.6	58.75
No.	260, 14	6.6	. 64	6.6											٠		* *	80.00



WIRE DRAWN FLOOR BROOMS.

WIRE FASTENED.

Fig. 421.

									٥	4		Per	Dozen,	\$15.00
x 14		4.4	6.6	6.4	* 6 * 1							6 6	4 +	17.50
x 16		4.4	4.4	h 6						v		* *	* 6	20.00
32, 13	5	blocks	, all blac	k hair,	polishe	d doub	le hole	e blo	cks			¥2		17.59
36, 16	3	4.4		6.4		**	6.6	ř.	4			* *	6.	25.0_{0}
The f	ollov	ving ar	e all hair	r, black	middle.	, white	outsid	е.	Polisl	hed o	duof	le ho	le block	S:
12, 12	2 inc	h block	ss .					9				Per	Dozen,	\$23.75
14, 14	1 "	6.5					,		,			6.6	6.5	30.00
16, 16	3 "	4.4												33 75
	x 14 x 16 32, 13 34, 1- 36, 16 The for 12, 13	x 14 x 16 32, 12 34, 14 36, 16 The follow 12, 12 inc 14, 14	x 14	x 14	x 14	x 14	x 14	x 14	x 14	x 14	x 14	x 14	x 14	x 12 inch Gray middled cased with gray hair



OSTRICH FEATHER DUSTERS.

BELL DUSTERS .- FULL CENTRE.

The size number designates the length of feathers in inches.

No.	5	3	Per	doz.,	\$ 2.50	No.	13		Per	doz.,	\$22.50
4.5	6			4.5	3.75	. 4 .	14		h 4		27.00
6.6	7		h a	6.6	5.00	h fi	15	4	4. 4		28.00
4.6	8		6.4	h h	6.25	4.6	16		4.4	h 4	30.00
	9		4.6		7.50	6.4	18				32.00
h h	10		6.4	* *	11.00	6.	20	,	* *	6.4	35.00
1.1	11		4.4	6.6	14.00	6.5	22		4.6	4.4	37.00
4.6	12		6.6	6.6	18.00	6.6	24		6.4	6.4	40.00

CARRIACE DUSTERS.

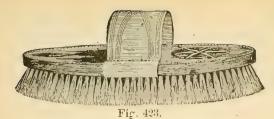
Made very heavy for railroad cars and janitors' use.

No.	1, 11 i								Per	doz.,	\$43,00
6.5	2, 13	6.4	_	9			a				54.00
	3, 15	6.6				6				5.5	60.00
	4, 17		-							6.4	66.00
	5. 19								4.4	4.4	72,00

Fig. 422.

CURKEY FEATHER DUSTERS

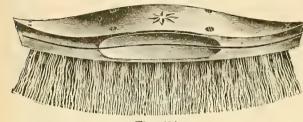
	IONNE		8m /PL B 3 B &m 8 A	F 6	OIL	<i>y</i> 8		
Size, inches Per Dozen	10 \$4.50	11 5.00	12 6.00	13 7.00	$\frac{14}{8.00}$	$\frac{15}{8.50}$	$\begin{array}{c} 16 \\ 9.50 \end{array}$	$\begin{array}{c} 18\\11.50\end{array}$



BRUSHES.

We make any style, quality or quantity to order quickly.

No.	115.				Per Dozen,	\$4.25
6.6	72.	Army Pattern, round face,		۰	66 64	7.00
		"Honest" All Stump Bristles,			66 66	10.00
		All Stump Bristles, .	۰		66 66	17.00
		All Bronze Bristles, flat face,	o		66 66	24.00



DANDY BRUSHES.

HORSES' HOOF, MANE OR TAIL BRUSHES.

Fig. 424.

No.	401.	Sea Root,			Per	Dozen,	\$2.25
66	443.	Hindoo India Fibre,			66	6.6	3.20
66	929.	Sea Root,			66	6.6	3.50
4.6	757.	Sea Root, packed one brush in a box,			66	6.6	5.00
66	1515.	Sea Root, packed one brush in a box,			66	6.6	5.75
66 8	5000.	Sea Root, Palmetto outside, one brush	ı in	a box,	66	4.6	6.75

WADING PANTS AND LEGGINS.

WITH BOOTS, RUBBER OR CORK SOLES.

COLOR - DEAD GRASS.

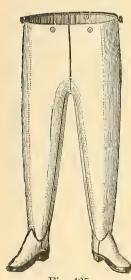


Fig. 425.

Mackintosh Pants, with Rubber Soles. Weight, 6 lbs. 5 oz., \$14.00

Mackintosh Pants, with Cork Soles. Weight, 6 lbs. 4 oz., per pair, . \$14.00

Mackintosh Leggins, with Rubber Soles. Weight, 3 lbs. 14 oz, per pair, . \$10.00

Mackintosh Leggins, with Cork Soles. Weight, 3 lbs. 12 oz., per pair, . . . \$10.00

Dull finish Wading Pants, Heavy Drill, coated on one side with Rubber, with Boots. Weight, 7 lbs., price, per pair,

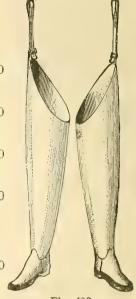


Fig. 426.

THE JEWETT PATENT FILTER AND COOLER.

FOR RAIN, RIVER, AND HYDRANT WATER. WITH NEW FILTERING BED.

COMBINES

First—A Separate Vessel containing the Filtering Medium.

Second—An Outer Case, fitted to receive said vessel, with cover.

Third—A Porcelain Lined Cooler.



PRICE LIST AND DIMENSIONS.

Fig. 427.

No.	PRICE, EACH.	CAPACITY PORCELAIN COOLER.	EXTREME HEIGHT	DIAM. OF BASE.	WEIGHT BOXED,
161 162 163 164 165	\$6 25 8.25 10,00 12 00 14.00	$\frac{4\frac{1}{4}}{4}$ qts. $7\frac{1}{2}$ " 11 " 16 " 26 "	25 in. 29 '' 33 '' 41 ''	10 in. 11½ " 13 " 15 " 17 "	50 lbs. 65 '' 90 '' 125 '' 175 ''

Fig. 427. - Oak Grained.

PRICE LIST AND DIMENSIONS.

Fig. 428.

No.	PRICE, EACH.	CAPACITY PORCELAIN COOLER	EXTREME DIAM OF HEIGHT, BASE,	WEIGHT BOXED
171	\$6.75	11 '' 16 '' 26 ''	25 in. 10 in.	50lbs,
172	8.75		29 " 11½ "	65 "
173	10.50		33 " 13 "	90 "
174	12.50		36 " 15 "	125 "
175	14.50		41 " 17 "	175 "

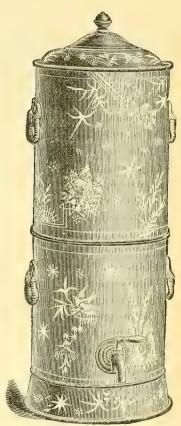


Fig. 428.—Ornamental.
Assorted Colors.

WATER COOLERS.



Fig. 429. THE RUBY.

Porcelain-Lined Reservoir, Charcoal Filled, Nickel Plated Self-Closing Faucet, Assorted Colors and Decorations.

No. 402 403 404	Price, Each. \$4.75 5.50 7.00	Capacity. 2 gallons 3 " 4 "	Extreme Height. 20 inches $21\frac{1}{2}$ '' 24	$\begin{array}{c} \text{Diameter} \\ \text{of Base.} \\ 11\frac{1}{2} \text{ inches} \\ 11\frac{1}{2} & \text{``} \\ 13\frac{1}{2} & \text{``} \end{array}$	Weight, Boxed. 35 lbs. 40 " 50 "
405	8.50	5 "	251 "	15 "	70 "
406 407	$9.50 \\ 10.50$	§ " 7 "	$\frac{26\frac{1}{2}}{28}$	$\begin{array}{ccc} 15\frac{1}{2} & `` & \\ 16 & `` & \end{array}$	80 " 85 "
408	10.50 12.50	8 "	$\frac{20}{301}$	161 ''	90 4
410	15.00	10 "	32 "	$17\frac{7}{2}$ "	110 "

THE RUBY-OAK GRAINED. Same price and dimensions.

Nos. . 1492 1403 1404 1405 1406 1407 1408 1410

EXTRA LARGE SIZES FOR DEPOTS, HOTELS, RESTAURANTS AND PUBLIC PLACES.

Porcelain-Lined Reservoir, Nickel Plated Self-Cosing Faucet, Charcoal Falled.

NOTE.—These Large Coolers are Painted, Decorated or Lettered, as desired, without extra charge. Please give instructions on order.

No	Price,	Capacity.	Extreme	Diameter	Weight,
2.0	Each.	Cupentroj.	Height.	of Base.	Boxed.
12	\$22.00	12 gallons	34 inches	19½ inches	130 lbs
14	26.00	14 "	36 "	20 "	150 "
16	32 00	16 "	38 "	2013 "	240 "
20	40.00	20 "	40	×1ءِ ''	270 ''

NOTE.—These Coolers, with *Two Faucets*, add to List \$5.00, and state on order if *Opposite* or on *Quarter*.

WATER COOLERS.

THE DAKOTA.

Galvanized Iron Reservoir, Charcoal Filled, Nickel Plated Self-Closing Faucet, Assorted Colors and Decorations.

No.	Price Each.		Capacity.	Extreme Height	Diameter of Base.
702.	\$3.00	2	gallons	$19\frac{1}{4}$ in.	$10\frac{1}{2}$ in.
703.	3.75	3	66	21 in.	11 in.
704.	4.30	4	66	23 in.	12 in.
706.	5.16	6	66	$24\frac{1}{2}$ in.	15 in.
708.	6.25	8	66	$28\frac{1}{2}$ in.	$16\frac{1}{4}$ in.
710.	7.25	10	6.6	$31\frac{1}{2}$ in.	$16\frac{3}{4}$ in.
712.	8.25	12	6.	$32\frac{3}{4}$ in.	18 in.

OAKED GRAINED.

Same Price and Dimensions.

S.
6
6
6
6
4
6



Fig. 430.

COOLER STAND AND DRAINER.

Grained Mahogany or Oak, Cast Iron Top and Feet, Hard Maple Post; can be taken apart to pack.

MAHOGANY GRAINED.

		Diameter		
		of Top	Extreme	
	Price	Inside Rim	Height.	Shipping
No	Each.	Inches.	Inches.	Weight.
3	\$3.50	$12\frac{1}{2}$	27	65 lbs.
4	4.00	15	27	75 "
5	5.00	18	914	85 14

Oak Grained same Price and Dimensions.

RED OAK STAND AND DRAINER.

Square Cast-Iron or Oak Top, Finished Antique Oak, four legs.

		Price
No.	Size Top, Inside Rim.	Each.
116	16 inches square,	\$ 8.00
119	18 4 """	9.00
122	22 "	10.50

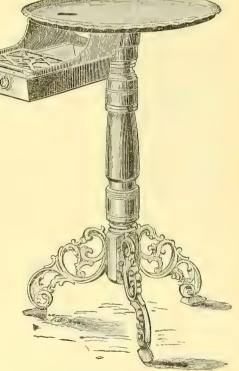
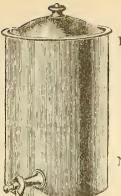


Fig. 431.

INDURATED FIBRE ICE WATER JARS.



Perfectly Plain Jar with Nickel Plated Self-closing Faucet. Per Dozen. No.

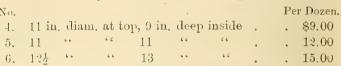
. \$13.80 9 in, diam, 11 in, high inside. 4. 16.80 9 13 5. 19 80 103 12 6. 12 22.80 12 8 25.80 10, 12 14

Nos. 4 and 5 are packed quarter dozen in crate. Nos. 6, 8 and 10 packed one-sixth dozen in crate.

Fig. 432.

INDURATED FIBRE ICE WATER BUCKET.

Perfectly Plain, with Self-closing Faucet.



Packed one quarter dozen in a crate. Or nest done each size in a crate. Per nest, \$3.00.

Fig. 433.

INDURATED FIBRE PAILS.

				Per		ite
			-	Dozen.	Cont	ams.
Star, Standard Size		13	quarts.	\$3.00	1 de	zen
Deck, Heavy Bail and	Ears,	12		3.60	$\frac{1}{2}$	66
Railroad		1.4	6.6	4.20	$\frac{1}{2}$	- 6
Factory		1‡	* * *	4 20	$\frac{1}{2}$	6.6
Covers, for Star, Railroa	dorR	oun	d Botto	m pails, \$	1 60	doz



Fig. 434.—STAR.

Pails, Stenciled "For Fire

Only.".										
		Per Doz.								
Star .		13	quarts	\$3.20						
Railroad		1 ‡	. 6	4 20						
Factory		11	6.6	4.20						
Round Botto	om	12	6.	4.20						
Deep .		10	6.4	4 80						





Fig. 436.-DEEP FIRE PAIL. To hang up. Red band painted around top of any above Fire Pails, add to 1 st price 60 cents per dozen.

		CALV	ANIZEC	FIRE	BUCK	ETS.		
1	No		4 6 2		10	12	14	16
	Quarts . Per Dozen	•		•	10	12	14	16
	rer Dozen		ed Red, \$1.	 00 per Doz	\$4.50 en Net Ex	**	\$5.50	\$7.50
and a second			20011, 47	00 P01 202	011 21.00 22.	201001		
Fig. 437.								
		ANIZED	ROUND	BOTTO				
	No Quarts					$\frac{410}{10}$	413 12	414 14
	Per Dozen				*	6.75	\$7.25	\$7.50
基 。		COVERS	ed Red, \$1.				. 6	
	No		POR GAL	1	10	12	14	16
	Per Dozen.	Pain	ted Red, 25	\$2 c. per Doze	.00 \$: n Net Ex	2.25 tra.	\$2.50	\$3.00
Fig. 438.			,	p				
3			CALVAR	HZED I	PAILS			
				Heavy.				
	No.		With Ir	on-clad Bot . 210	tom. 212	214	216	220
	Quarts Per Dozen			. 10 \$5.50	12 \$6.00	$\frac{14}{\$6.25}$	16	20 316.00
	1 61 1702.611		ERS FOR	"	"		\$3.00	\$10.00
	No			. 210	212	214	216	220
Fig. 439.	Per Dozen	• • •		. \$2.00	\$2.25	\$2.50	\$3.00	\$4 00
			GALVA	NIZED	PAILS	-		
	TT	TT 1 . T		tra Heavy.			T - Ch	
	No	Wrought Iro		ottom Keini		. Band	Tron Str	314
	Quarta . Per Dozer						٠	14 \$12.00
		VERS FOR	EXTRA	HEAVY	CALVAN	IIZED	PAILS.	314
Fig. 440.	Per Dozei	1						\$2.50
		MORT	TAR OR	CEME	NT P	AILS		
	į	WOKI	Aque	educt Patte	rn.	AILO	19	
	No.			alvanized.				611
	Quarts . Per Dozen	g 8					•	14 \$26.10
			BL.	ACK IRO	N		•	
Fig 441.	No Quarts						•	$\frac{624}{14}$
* 15 111.	Per Dozen							\$24.00
			CALV	ANIZEC	DIPE	PERS		
		No.					10	20
A.		Quarts .					1	2
		Inches . Per Dozen						6½x9¾ \$1.53
7250		r er Dozen					4	



ENAMELED DRINKING CUPS.

		_	 						
No.			·		8	9	10	11	12
Inches .			ε		33x15			45 x2}	
Per Doze	:11				#2.75			\$4.75	\$4.50
			Case	Lots	. 12 dozen	of a size			



Case Lots, 1 Gross of a S.ze.

Per. Dozen \$8.00 9 00 . 10.50



Fi	c	44	14
J. 1	Y .	1	TT:

INDURATED FIBRE SPITTOONS. ATT. FIRRE

				41	11111					Doz.	Contains
No. 1.	51 in. b	igh, I	13 jn.	diar	n.,					\$6.00	$\frac{1}{2}$ doz.
16 9	$5\frac{1}{4}$ $4\frac{1}{2}$	4.4	11 ''			•	-			4.20	1 44 1 44 1 44
Nested.	one eac	ch siz	e,			•		. per	nest.	1.25	2 nest
No. 1.	Tops a	lone,		•	•					2.00 1.80	2 "
· · · 2.		6.5								1.60	2 ''
				The	cover	lifts	off.				

BRASS CUSPIDORS.



Fig. 445.

	SELF	RI	CHIING	CO : PIDORO.	
			Patente	ed.	
No.					
1. Polished	Brass, 6	in.	diameter,	$4\frac{3}{4}$ in. deep,	٠
1. Nickel P.	lated,	. "	6.0	**	
o Doliched	Brace 7.	⊾ in.	. diameter.	5¾ in. deep,	

, 12 m. mameter, 97 m . 12.00 2. Nickel Plated,

4. Nickel Plated, " DEEP PATTERN.

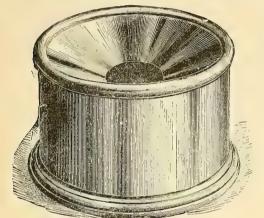


Fig. 446.

Per Dozen. Brass, $8\frac{1}{2} \times 5\frac{1}{2}$ in., Nickel $8\frac{1}{2} \times 5\frac{1}{2}$ in., Brass, $11\frac{1}{2} \times 6$ in., , \$15.50 14. . 17.00 14. . 20.00 20. . 22.50 20. Nickel, 11 x 6 in.,

EMBOSSED PATTERN.



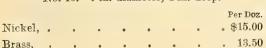
Fig. 447.

	5			Per
No.				Dozen.
10.	Brass, $7\frac{1}{2} \times 3$ in.,			\$9.00
	Nickel, 7½ x 3 in.,			10.00
12.	Brass, $8\frac{1}{2} \times 3$ in.,			12.00
12.	Nickel, $8\frac{1}{2} \times 3$ in.,	٠	٠	13.50



Fig. 448.

No. 15. 7 in. diameter, 4 in. deep.





ENAMELED HOTEL SPITTOONS.

No. 20 Inches, . . . $9\frac{1}{4} \times 4$ Per doz., . . . \$15.00

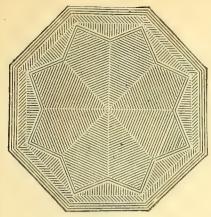
"Case Lots," 2 doz.



)	ENAMELED	CUSPII	DORS
	No.	2	3
Ì	Inches.	7 x 4	8×4

Fig. 450. "Case Lots," 2 doz. of a size.

Per doz., . , \$8.00



CORRUCATED CUSPIDOR OR PITCHER MAT.

						Per Dozen
No. 1.	10 i	nches i	in diameter,	٥		\$ 5.00
No. 2.	12	4.6	66			7.00
No. 3.	15	6.6	66	•	•	9.00
No. 4.	18	4.6	66			11.00

These Mats can be made with heavy raised border, at slight additional cost.

Fig. 451.

Y, NEW YORK.

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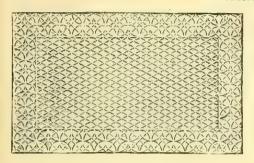
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DIAMOND MATS.



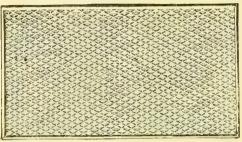


Fig. 452. WITH BORDER.

Fig. 453. WITHOUT BORDER.

RUBBER CORRUGATED STAIR TREADS.





Fig. 454. OLD PATTERN.

Fig. 455. NEW PATTERN.

OLD OR NEW PATTERN.

No.	Size Inches.	Per doz. 1-8 in. Thick.	Per doz. 3-32 m Thick	No.	Size Inches.	Per doz. 1.5 in. Thick.	Per doz 3-32 n Thick.	No.	Size Inches.	Per doz. 1-% in. Thick.	Per doz, 3-32 in. Thick.
1 2 3 3½ 4 5 6 7 8 9	4 x 23 4 x 24 4 x 29 5 x 40 6 x 18 6 x 20 6 x 24 6 x 49 7 x 24 7 x 24 7 x 24	\$3,35 3,50 5,50 7,85 4,00 4,40 5,25 10,50 4,60 6,00 7,00 10,00	\$2.75 3.00 4.70 6.00 3.30 3.60 4.35 5.50 3.75 5.00 5.85 8.30	13 14 15 16 17 19 20 21 22 23 24	7½ x 42 7½ x 48 8 x 18 8 x 20 8 x 22 8 x 24 8 x 24 8 x 30 8 x 30 8 x 35 6 x 36 7 x 36 8 x 36 8 x 36 8 x 36 8 x 36 8 x 36 8 x 36 8 x 37 8 x 36 8 x	\$11.07 12.50 5.25 5.85 6.60 7.90 8.80 10.25 10.55 14.60 5.95	\$ 9.10 10 40 4.35 4.80 5.50 6.00 6.48 7.20 8.40 8.65 12.15 4.85	26 27 20 30 31 32 33 34 35 36 37	9 x 28 9 x 3214 9 x 15 9 x 36 9 x 10 9 x 18 9 x 54 9 x 54 10 x 24 10 2 x 56 12 x 36	\$ 9.24 10.80 11.55 11.55 12.10 15.00 16.80 18.50 8.40 21.55 22.60 15.85	\$ 7 55 8.85 9.45 9.75 10.40 12.50 14.00 15.10 7.00 17.65 18.50
12	716 x 20	5.5)	4.50	25	9 x 2312	7.75	6 35	38	12 x 45	19.80	16.20

NEW PATTERN ONLY.

American								L		T 1	D . Jee
No.	Size Inches.	Per doz. 1-c in. Thick.	Per doz. 3-32 m. Thick	No	Size Ir mes	Per doz. 1-8 in. Th ek-	Per doz. 3-32 m. Thick.	No.	Size Inches.	Per doz. 1-8 m. Thie:	Per doz 3-32 in Thick
33 40	6 x 22 9 x 24	\$4 ±5 7.90	\$4.00 6.50	42 43	9 x 30 9 x 27 7 x 29	\$9.90 8.90 7.45	\$9.10 7.30 6.10	45 46	5 x 16 6 x 201/2	\$2.90 4.50	\$2 40 3,75
11	0 5 31	13 20	9 25	4 -	1 3 ~3	4 - 10	0.10	1			

NEW PATTERN MATTING.

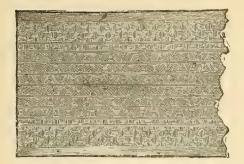


Fig. 456

Made in rolls about forty yards long. With border it is one yard wide. Without border three quarters yard wide. Cut to order any length.

Pric	е		٠			per	lb.,	\$0.40
3-32	inch	thick,	weighs	71	lbs.	per	sq.	yard.
1-8	5.5	6 h	* *					
3-16	6.6	6.4	4.6	141	6.6	+ 6	4.4	4.4
1-4	6 -	b 6	6	19	6.4	» 4	6.6	4.5
5-16	6.6	6	4.6	24	6.6	6.5	4.6	6.6
3-8	6.6	6 .	4.6	281	4 6	6.6	6.4	4
7-16	6.6	6.4	6.6	33~	6.6	+ 6	4.6	4
10	+ 1	6.6	6 5	38		6.6	6.6	6.4

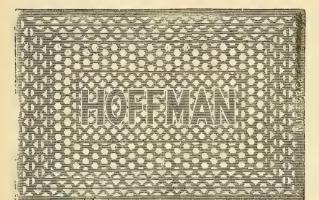


Fig. 457.

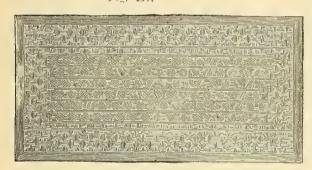
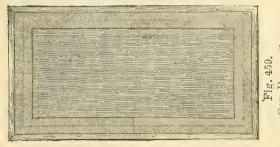


Fig. 458.



PERFORATED MATS.

PLAIN OR CORRUGATED.

NO. 1, OR HEXAGON.

CRESCENT BORDER.

j.	inch	thick		per	sq.	ft.	\$0.75
3,5	4.6	6.6		h 6	6.6	44	1.00
1 2	4	6.6			٠.	6.	1.25

Lettering, 25 cents per letter extra. Red or white letters 50 cents per letter extra. Small sizes carried in stock. Mats made to order of any size or shape.

MONOGRAM MATS MADE TO ORDER.

Prices on Application.

Sketch Submitted if Desired.

CORRUCATED RUBBER MATS.

NEW PATTE	ERN.	F INCH	Тиск.
1	ER		PER
NO. INCHES D	oz. No	. INCHE	s Doz.
00 15x 15 \$	39.00 16	24 x	34 \$27.25
0 18x 18 1	1.00 17	17 x	
1 17x 31 1	.8-50 18	2216 x	36 27.90
	0.00 - 19	21 X	48 40.00
	18.50 - 20	255gx	5474 46.75
	6 50 21	20 x	30 20.00
	6.00 22	36 x1	56 205.75
	6.00 23		
	8.10 24		77 101.65
	21,50 25	19 x	36 25.10
	1.00 - 26	16 x	30 17.60
	5 00 27	36 X -	10 52.80
	3.60 - 28		11 7 56.60
	0.00 - 29		
	7.00 - 30	31 x -	12 47.75
	3.00 31		
	6.00 3 2		
15 32x113 12	2.00 - 33	14.55	24 12.75

In stock or made to order at short notice. Any size Mats varying from the ones on the Price List can be made by special order, with a slight advance charge for the first dozen.



Fig. 460.

IMPROVED "SPECIAL" COAL HODS. JAPANNED OPEN TOP.

No.	05	96	07	08
Inches .	15	16	17	18
Price per dozen,	\$8.25	\$8.75	\$9.50	\$10.00
	CALVASI	SZED ODEN Z	COD	

	GALVANIZED	OPEN	TOP.	
No	015	016	017	018
Inches .	15	16	17	18
Price per Dozen	\$11.50	\$12.50	\$13.50	\$14.50

EXTRA HEAVY COAL HODS.



F g. 461.

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COMPANY,

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	JAPA	NNEO.		
No.	315	316	317	318
Inches, .	15	16	17	18
Price per Dozen	\$8.25	\$8.75	\$9.50	\$10.60
	GALVA	NIZED.		
No.	415	416	417	418
Inches	15	16	17	18

Price per Dozen \$11.50 \$12.50 \$13.50 \$14.50



CALVANIZED ASH CANS.

No.	$2\frac{1}{2}$	3	4	5	6
Inches	14x19	15x26	17x26	18x26	20x26
Each	\$4 00	\$4.50	\$5.25	\$5.50	\$6 50

COVERS.

No.	21/2	3	4	5	6
Per Dozen	\$7 .50	\$8.50	\$9.50	\$10.00	\$10.50



Fig. 463.

CALVANIZED ASH CANS. WITH EIGHT WOOD STRAPS.

No.	 7	8	9	10
Inches	15x26	17x26	18x26	20x26
Each	\$5.25	\$6.00	\$6.25	\$7.25
	CO	VERS.		

9 10 No. 8 \$9,50 \$10.00 \$10,50 Per Dozen . \$8 50



Fig. 464.

GALVANIZED ASH CANS.

WITH HEAVY BAIL FOR HOISTING.

No.	250	300	4(),)	500	600
Inches	14x19	15x26	17x\6	18x26	20x36
Each	\$5.50	\$6.50	\$7.25	\$7.50	\$8.50

WITH EIGHT WOOD STRAPS.

No.	70.	. 80	90	100
Inches	15x26	17x26	18x26	50z5e
Each	\$7.25	\$8.00	\$8.25	\$9.25

ENCINEERS' ASH CAN.

STEEL THROUGHOUT.

A S		No.	
11/20	THE P	70.0	
2014			3
			10
		i ş	
	5		5
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	818		8
W.	3.50		9
4	SACH V		
3	14	推到	
			Tie.

Fig. 465.

		JAPANNED.		
No.	35	45	55	65
Inches	. 15 x 24	17 x 24	18 x 24	20 x 24
Weight	. 34 lbs.	40 lbs.	42 lbs.	47 lbs
Each	\$8.75	\$9.25	\$10.00	\$11.50
		CALVANIZED.		
No.	305	405	505	605
Inches	. 15 x 24	17 x 24	18 x 24	20 x 24
Weight	37 lbs.	43 lbs.	45 lbs.	50 lbs.
Each	\$11.00	\$11.75	\$ 12.25	\$14.50

COVERS.

Heavy, Cone Shape, Fitting Outside.

GALVANIZED.

 Inches
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This can is made of steel throughout, with heavy forged stationary handles, and reinforced eye-holes, for the purpose of handling the can with "block and fall," if required. No stronger Can has ever been made.



TOWN IMPROVEMENT WASTE CANS.

Galvanized and Painted Dark Green Outside. Also used about Railroad Stations, Offices, and other Large Buildings.

No.	Diam.	Height.	Price Each.
3	15 in.	30 in.	\$2.50
4	17	30 · ·	2 75
6	20 "	30 ''	3.00

The height given does not include the hood cover. Lettered in white, extra per can, 25 cents.

These cans are made of steel, galvanized after they are made, and painted dark green on the outside. The bottoms are stamped from one piece of metal, reinforced with heavy hoop, and perforated to prevent accumulation of rain water. Half hood cover and solid ring for attaching can by means of chain to lamp-post or other fixture.



CALVANIZED OIL WASTE CANS.

Self-Closing Cover. With Improved Spring Atlachment.



No.

No.				RC	ואט	ο.				1
Inches										$11\frac{1}{4} \times 15$
Per Dozen		٠	٠						-	\$18.00

MADE TO ORDER ONLY.

ROUND.

5

Inches 12×18 13×20 14 x 22 16 x 24 18×26 20×30 24×36 Fig. 467. Dozen \$24.00 \$28 00 \$36.00 \$42.00 \$56.00 \$90.00 \$130.00

These Oil Waste Cans are made without the use of solder and are galvanized after being put together. They are recommended by the leading Insurance Companies.



Fig. 468.

CALVANIZED OIL CANS.

N. Y. C. & H. R. R. R. Pattern.

	Br	ass Screw Cap.		
No.	1	2	3	3
Diameter, inches	$6\frac{1}{4}$	8	9	$10\frac{1}{4}$
Height, body, in	7	9	10	12
Conetop	57	$2\frac{3}{4}$	3	3 }
Gailons .	 1	2	3	5
Each .	 \$2.30	\$2.40	\$2.80	\$3.00



KEROSENE OIL CANS.

WITH SPOUTS AND SCREW TOPS. SEAMLESS BREASTS.

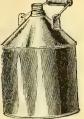
Quarts Price Each \$

4

4.1X



1



WITHOUT SPOUTS. SCREW TOPS. 1 2 Gallons 3 5 10 Price Each \$

Fig. 470.



Fig. 471.

KEROSENE OIL CANS.

WITHOUT	r spouts.				CORKS	
Gallons Price Each	· \$	1	2	3	5	10

CALVANIZED IRON ROUND CANS.

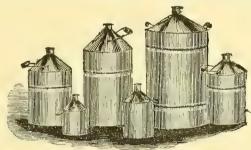


Fig. 472.

Made out of No. 26 BB Galvanized Iron.

Gallons Price Each		$\frac{\frac{1}{2}}{\$0.30}$	VERY STRO 1 .50	ONG. WELL 2 .70	MADE.	3 .85	5 \$1.00	10 \$1.50
		F	LAIN F	ROUND	CAN	s.		
Gallons		1/4	$\frac{1}{2}$	1		2	3	5
Price Each,		\$0 14	.17	.20		.30	.40	.50
5 Gallon,	Wood	Bottom	•				Price Each,	\$0.60
10 "		6 -	0			•	6	1.10



CALVANIZED IRON FAUCET CANS.

Made of No. 26 BB Galvanized Iron. Well Made.

5	Gallon,	Screw	Top,	3 inch T Fau	cet .	•		\$1.50
10	66	. 6	G	3 (*	•	•	2.25
3	6 6	6.6	6.6	Compression	Faucet		•	1.00
5	66	66	66	66	6.6		•	1.25
-	66	66	66	66	66		٠	2.00

Fig. 473.



CONE TOP JACKET TRANSPORTATION CANS.

1 :	gallon				. 8	\$0.40
2	66					.50
3	64					.60
5	66	Vented				.75
		6.6		•		1.20

STORING OIL CANS.

Special Sizes Made to Order.

F g 474.

GALVANIZED.

50

50

50

50

60

60

9.25 10.50 11.50

60

60

80

80

80

80

100

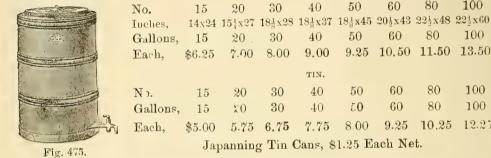
100

13.50

100

100

12.25



8.00 9.25 10.25Japanning Tin Cans, \$1.25 Each Net.

IXXXX Tin Cylinder—No. 18 Gauge. Steel Bottom. Brass Cocks.



Fig. 476.

CALVANIZED WATER POTS.

REGULAR PATTERN.

Cylinder and Spout Stamped in One Piece.

No.	4	6	8	10	12	16	20
Qu ris,	4	6	8	10	13	16	20
Per Doz.,	\$9.00	12.00	15.00	18.00	21.00	$24\ 00$	42.00

CALVANIZED WATER CARRIERS.

No.	8:0	£12	814	816	820
Quarts,	10	12	14	16	29
Per Dozen,	\$8 25	\$10.25	\$12.00	\$14.50	\$22.50
			132		



Fig. 477.

RECULAR INSIDE IRON STRAPPED BLOCKS. HARGOURT'S PATENT.



SINGLE. Loose Hook and Becket. Fig. 478.



DOUBLE. Loose Hook and Becket. Fig. 479.



TRIPLE. Loose Hook and Becket, Fig. 480.



SINGLE-Loose Hook,

. 4



DOUBLE-Loose Hook.



TRIPLE--Loose Hook.

F	ig. 481.		Fig. 482.				Fig. 483,					
DIME	ENSION	S.								ET EXTRA FOR VANIZED STRAPS.		
S ze Sheave.	Dia. Rope.	Size Shell.	Single	Double	Triple	Single	Double	Triple	Single	Double	Triple	
134 X 1-2-15 X 20 X 20 X 20 X 20 X 20 X 20 X 20 X 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 in. 31 4 5 6 7 8 9 11 12 13 14 15 15 16	\$ 0.79 .75 .90 1.10 1.30 1.65 1.85 2.75 4.45 7.00 7.00 8.00	\$ 1.30 1.45 1.60 1.75 2.00 2.85 3.40 4.50 7.50 7.50 10.50 13.00 15.00	\$ 1.75 2.00 2.15 2.25 2.90 3.50 4.25 4.75 6.25 10.65 15.00 18.00 22.00	\$ 1.10 1.15 1.20 1.25 1.50 1.70 2.25 2.50 3.50 5.30 8.15 8.15 8.15 9.25	8 2.00 2.20 2.25 2.35 2.85 3.35 4.15 4.70 6.00 9.20 9.20 12.80 15.50 18.00	\$ 2.90 3.15' 3.25' 3.50 4.40 5.00 6.00 7.25 8.50 13.20 13.20 18.45 21.75' 26.50	.04 .05 .06 .10 .12 .16 .23 .28 .35 .35 .55	.21 .28 .38 .45 .45 .75 .75	\$ 0.10 .10 .11 .12 .15 .18 .30 .38 .50 .60 .1.00 1.25 1.55	
- , ,												

RECULAR INSIDE IRON STRAPPED BLOCKS.

HARCOURT'S PATENT.



SINGLE. Loose Hook and Becket. Fig. 484.



DOUBLE.
Loose Hook and Becket.
Fig. 485.



TRIPLE.
Loose Hook and Becket.
Fig. 486.



SINGLE. - Loose Hook. Fig. 487.



DOUBLE. - Loose Hook. Fig. 488.



TRIPLE. - Loose Hook. Fig. 489.

D	IMENSIONS.		OR ME	SPHOR BR ETALINE B E-LUBRICAT	USHED	NET EXTRA FOR GALVANIZED STRAPS.			
Size Sheaves.	For Dia Rope.	Size Shell.	Single.	Double.	Triple.	Single.	Double.	Triple.	
$2\frac{1}{4}x \frac{5}{8}x \frac{3}{8}$	1 2	4 inches.	\$1.50	\$2.90	\$4.15	\$0.05	\$0.07	\$0.11	
$3 \times \frac{3}{4} \times \frac{3}{8}$	5 8	5 "	1.73	3.35	4.75	.06	.08	.12	
$3\frac{1}{2}x1^{2}x\frac{1}{2}$.5 4	6 "	2.20	4.00	5.80	.10	.12	.15	
$4\frac{1}{4}x1 \times \frac{1}{2}$	7 8	7	2.50	4.50	6.70	.12	.15	.18	
4분x1분x품	1	8 "	3.25	5.70	8.50	.16	.21	.30	
$5\frac{3}{4}x1\frac{1}{8}x\frac{5}{8}$	1	9 "	3.70	6.75	10.00	.22	.28	.38	
$6\frac{1}{4} \times 1\frac{1}{4} \times \frac{5}{8}$	11	10	4.75	8.50	12.50	.28	.38	.50	
$7\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	$1\frac{1}{8}$	11 "	6.75	12.50	18.50	.35	.45	.60	
8 X1gX	$1\frac{1}{1}$	12	6.75	12.50	18.50	.35	.45	.60	
$9 \times 1\frac{1}{2} \times \frac{3}{4}$	$1\frac{1}{4}$	13 ''	9.75	17,00	25.00	.55	.75	1.00	
$9\frac{1}{2}x1\frac{5}{8}x\frac{7}{8}$	13	14	9.75	17.00	25.00	.55	.75	1.00	
$10^{\circ} \text{ x} 1\frac{5}{8} \text{ x}^{\frac{7}{8}}$. 13	15 "	11.00	19.50	28.50	.75	.95	1.25	

We recommend the Self-Lubricating Bushed Blocks for rap d and heavy work. They work smoothly, with little wear or friction, and in points of easy running and durability soon pay for their increased cost.

TACKLE BLOCKS.

HARCOURT'S PATENT.

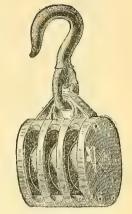
WITH LOOSE SWIVEL HOOKS.



SINGLE. Fig. 490.



DOUBLI.. Fig. 401.



TRIPLE. Fig. 492.

WITH LOOSE SWIVEL HOOKS AND BECKETS.



SINGLE. Fig. 493.



Fig. 494.



TRIPLE. Fig. 495.

For Blocks with Loose Swivel Hooks, add to lists on pages 133 and 134 as follows:

Size Hook §	3	Z.	1	$1\frac{1}{5}$	14	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	13	2 II	nch.
Size Hook 8	G Ŧ	9	8	9	10	12	13	14	15	16	4 *
For Block, Single 5	0			0	0	10	7 9	13	14	15	66
For Block, Double	5	6	7	0	θ	10	10	10	12	14	6.6
For Block, Triple		5	6	7	8	9	10	12	10	14	1-
Add to list \$0.50	0.50	0.50	0.60	0.75	0.90	1.20	1 75	2.50	3.00	5 50 E	асц.

STEEL TACKLE BLOCKS.

WITH LOOSE HOOKS.



F.g. 496.



DOUBLE. Fig. 497.



TRIPLE. F g. 498.

I	IMENSIONS	Š.	OZI	N BUSF	HED.		MPROVI ER LU		PHOSPHOR BRONZE OR METALINE BUSHED, SELF-LUBRICATING.		
Dia. of Sheaves	For I`ia.	Size Shell.	↑ n _s le.	Double	Triple.	Cingle.	Double.	riple.	Single.	Double.	l'riple.
$2\frac{1}{4}$ in.	$\frac{1}{2}$ in.	4 in.	\$ 90	\$1.75	\$2.50	\$1.40	\$2.60	\$3.75	\$1.65	\$3.25	\$4.75
3 in.	§ in.	5 in.	1.00	1.90	2.75	1.50	2.90	4.25	1.80	3.50	5.15
81 in.	3 in.	6 in.	1.25	2.25	3.25	1.75	3.25	4.75	2.10	4.00	5.80
4 <u>1</u> in.	7 in.	7 in.	1.50	2.70	4.00	2.10	3.85	5.80	2.45	4.60	6.85
$4\frac{3}{4}$ in.	1 in.	8 in.	1.85	3.20	4.75	2.55	4.60	6.85	2.90	5.30	7.90
$5\frac{1}{2}$ in.	1 ₈ in.	9 in.	2.47	4.00	5.50	3.20	5.60	7.90	3.55	6.30	9.00
$6\frac{1}{4}$ in.	$1\frac{1}{4}$ in.	10 in.	3.10	5.10	7.00	4.05	7.00	9.85	4.40	7.70	11.00
8 in.	1½ in.	12 in.	5.00	8.25	11.75	6.00	10.35	14.90	6.45	11.15	16.00
$9\frac{1}{2}$ in.	1 ³ / ₄ in.	14 in.	7.50	11.75	16.50	8.75	14.25	20.25	9.10	15.00	21.30

S zes 9 inch and larger take same size rope as Thick Mortise Wooden Blecks.

5 roll Roller Bushed Blocks quoted upon application. Use above Improved Roller Bushed lists.

We furnish these blocks thoroughly galvanized, when so required, for use on Salt Water For Blocks with Loose Swivel Hooks, add extras as per page 135.

HEAVY TACKLE THICK MORTISE BLOCKS.

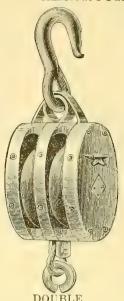
HARCOURT'S PATENT.



SINGLE.
LOOSE HOOK AND
BECKET.
Fig. 499,

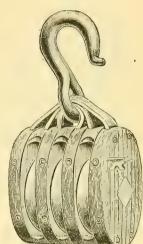
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DOŬBLE. Loose Hook and Beoket. Fig. 500.

Double Cross Bolted (with extra heavy Hooks and Straps), Loose Hooks, Rings or Shackles.



TRIPLE. LOOSE HOOK. Fig. 501.

_	DIMENSIONS,		IR	ON BUSH	ED	IMPROVED ROLLER EUSHED.			
Fize Sheave	For Dia Rope.	Size Shell,	Single	Double	Triple	Single.	Double.	Triple.	
4 x1 x 3 4 x1 x 3 4 x1 3 x 5	1 1 1 1	7 inches.	\$2.25 2.75	\$4.00 4.50	\$5.50 6,30	\$3.00 3.50	\$5.50 6.00	\$7.75 8.55	
$\frac{5\frac{1}{5}\times1\frac{3}{8}\times\frac{3}{8}}{6\frac{1}{4}\times1\frac{1}{2}\times\frac{3}{4}}$	1 <u>1</u> 8 1 <u>1</u> 4	9	3.15 4.00	5.25 6.50	7.25 8.50	$\frac{4.00}{5.25}$	6.95 9.00	9 80 12.25	
7 ×1½x 3 8 ×1½x ½ 9 ×1½x ½	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 '' 12 '' 13 ''	5.25 5.25	8.50	12.50	$\begin{array}{c} 6.50 \\ 6.50 \\ 9.75 \end{array}$	11.00 11.00 16.50	16.25	
$\frac{9 \text{ x} 17 \text{ x}}{9 \text{ y} \text{ x} 1 \text{ x}} \frac{7}{8}$ $\frac{9 \text{ y} \text{ x} 17 \text{ x}}{10 \text{ x} 17 \text{ x}} \frac{7}{8}$	15 15 17	14	8.00 8.00 9.00	13.00 13.00 15.00	17.00 17.00 20.00	9.75 11.00	16.50 16.50 19.00	22.25 22.25 26.00	
$11 \times 2\frac{1}{4} \times 1$	3	16	11.50	18.00	28.00	14.00	23.00	35.50	

	DIMENSIONS.		PHOSPHOR TRONZE OR METALINE BUSHED, SELF-LUBRICATIN					
S.de Sheave.	For D a. Rope	Size Shell.	Single.	Double.	Ttiple.			
44 x 13 x 566 56 56 56 56 56 56 56 56 56 56 56 56	1 do -1/2 and residue -	8 inches. 9 " 10 " 11 " 12 " 13 " 14 " 15 " 16 "	\$5.00 5.75 7.25 9.25 9.25 13.00 13.00 15.00 18.00	\$9.00 10.50 13.50 17.00 17.00 23.50 23.50 26.51 32.00	\$13.00 15.00 19.00 25.00 25.00 33.00 33.00 37.00 48.00			

For Blocks with mortise wider than above, add 10 per cent, to list for each extra a inch or fraction thereof. For Blocks with Loose Swivel Hooks, add extras to list as per page 135. 5 roll Roller Bushed Blocks quoted upon application. Use above Improved Roller Bushed lists, hese Blocks are adapted for railroads, mining, bridge building and contractors' work. These Blocks are intended for rapid and heavy work.

EXTRA HEAVY IRON STRAPPED BLOCKS.

HARCOURT'S PATENT.

FOR RAILROAD WRECKING CARS AND STEAMBOAT USE--WITH RINGS OR SHACKLES.



AND BECKET.

These Extra Heavy Blocks are made throughout in the best possible manner. Every detail, from the selection of the materials to the workmanship and finish, has been given the most careful attention.

Larger sizes furnished to order.



LASHING SHACKLE. Fig. 503,

r (2. 702.	DIMENSIONS,		IR	ON BUSHI	ED.	IMPROVED ROLLE & BUSHED.			
Size Sheave.	For Dia, Rope,	Size Shell.	Single.	Double.	Triple.	Single.	Double.	T iple.	
$\begin{array}{c} 12 \times 2_8^3 \times 1 \\ 14 \times 2_8^7 \times 1_4^4 \\ 15 \times 3_8^3 \times 1_4^4 \\ 16 \times 3_8^7 \times 1_8^5 \end{array}$	$2\frac{1}{4}$ inches. $2\frac{1}{2}$ 3	18 inches. 20 '' 22 '' 24 ''	\$15.00 21.00 26.00 32.00	\$29.00 37.00 48.00 56.00	$ \begin{array}{r} \$42.00 \\ 54.00 \\ 70.00 \\ 84.00 \end{array} $	\$18.00 25.00	\$35.00 45.00	\$52.00 65.00	

PHOSPHOR BRONZE OR METALINE SELF-LUBRICATING BUSHED.

Size Shell. Inches.	Single.	Double.	Triple,	Size Shell.	Single.	Pouble.	Tri, le.
18	\$23.00	\$44.00	\$63.00	. 22	\$38.00	\$70.00	\$100.00
20	32.00	54.00	77.00	24	46.00	85.00	125 00



PHOSPHOR BRONZE OR METALINE BUSHED.
SELF LUBRICATING



Fig. 504.

Length of Shell.	; ize of theave	For Rope.	Price
10	$6 \text{ x} \frac{13}{8} \text{x} \frac{3}{4}$	$1\frac{1}{8}$	\$6.00
13	8 x15x 5	14	8.50
14	$9\frac{1}{2}x1\frac{3}{4}x \frac{7}{8}$	13	11.00
15	$10 \text{ x} 1\frac{7}{8} \text{x} \frac{7}{8}$	1 1 2	13.00
16	11 x17x 7/8	$1\frac{1}{2}$	15.00
18	12 x2 x1	13	20.00
20	$14 \text{ x} 2\frac{7}{8}\text{x} 1$	2	25.00
		1	

WROUGHT IRON BLOCKS.

ENGLI H PATAERN.

IRON SHEAVES WITH POLISHED CROOVES.



Fig. 505.



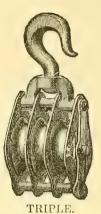




Fig. 507.

QUADRUPLE. Fig. 508.

DIMENSIONS.

IRON BUSHED.

PHOSPHOR BRONZE OR METALINE BUSHED,

			1				ELF	-LUBRICA	TING.
Size Sheave.	For Dia. Rope.	For Chain.	Size Shell.	Single.	Double.	Triple.	Single.	Double.	Triple.
Inches.	Inches.	Inches.	Inches.	Each.	Each.	Each.	Each.	Each.	Each.
$3\frac{1}{2} \times 1$	$\frac{3}{4}$		G	\$ 2 35	\$3.75	\$1.60	\$3.35	\$5.75	\$7.60
$4\frac{1}{4} \times 1$	$\frac{7}{8}$		7	3 10	4.60	5.85	4.35	7.10	9 60
$4\frac{3}{4} \times 1\frac{1}{8}$	1		8	4 00	5 85	7.50	5 25	8.35	11.25
5 x 1,5	$1\frac{1}{8}$	14	9	5 35	8 20	10.50	6.85	11.20	15 00
6 x $1\frac{1}{2}$	$1\frac{1}{4}$	1 6	10	6.20	10.50	13.50	7.85	13.80	18 50
7 x 1§	$1\frac{1}{2}$	3 8	12	7.60	13.50	17.25	9.45	17.20	22 80
8 x $1\frac{7}{8}$	$1\frac{3}{4}$	76	14	10 50	20 00	27 00	12.60	24.20	33.30
$9 \times 2\frac{1}{4}$	2	16	16	16 70	27 50	38 50	19 20	32.50	46.00
10 x $2\frac{3}{8}$	$2\frac{1}{4}$	1 6	18	28.50	43 00	58 50	31.75	49.50	68.25
11 x 25/8	$2\frac{1}{2}$	Ŝ	20	38.60	58.50	86.00	42.00	65.30	96.20

Larger sizes furnished to order.

We use the above Iron Bushed lists for Roller Bushed Blocks, but discount them less for Roller Bushed than for Iron Bushed.

Eighteen Inch Blocks and larger fitted with shackles instead of hooks when so preferred.

For list on Quadruple Blocks add the lists for Single and Triple together.

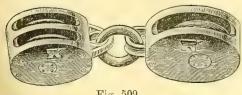


Fig. 509.

BACK GUY-BLOCKS,

FOR DERRICKS.

Prices quoted upon application.

WROUGHT IRON BLOCKS FOR WIRE ROPE. REGULAR PATTERN.

STIFF SWIVEL HOOKS-OVAL SHELL.

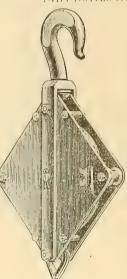
STIFF SAIVEL HOOKS -DIAMOND SHELL.



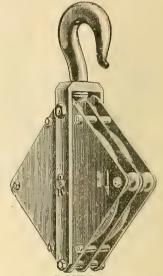
SINGLE. Fig. 510.



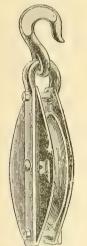
Fig. 511.



SINGLE. Fig. 512.



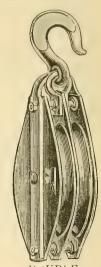
DOUBLE. Fig. 513.



SINGLE. Fig. 514.

LOOSE HOOKS OVAL SHELL.

These Blocks made with Diamond Shell—see cuts Figs. 512 and 513—without extra charge.



DOUBLE. Fig. 515.

		IR	ON BUSH	ED.	Phosphor Bronze or Metaline Self-Lubricating Bushed.				
Dia, Sheave,	For Rope.	Single.	Double.	Triple.	Single.	Double.	Triple.		
10 in diam. 12 '' 14 '' 16 '' 18 ''	3 in. diam.	\$10.00 12.00 14.00 16.00 20.00	\$15.00 17.00 19.00 22.00 28.0)	\$20.00 23.00 26.00 30.00 36.00	\$13.60 15.00 17.00 19.50 24.00	\$21.00 23.00 25.00 29.50 34.00	\$28.00 31.00 34.00 40.00 46.00		

WROUGHT IRON BLOCKS FOR WIRE ROPE.

EXTRA HEAVY, WITH SWIVEL HOOKS OR SHACKLES.

STIFF SWIVEL HOOK.

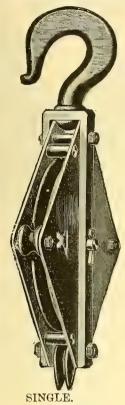


Fig. 516.

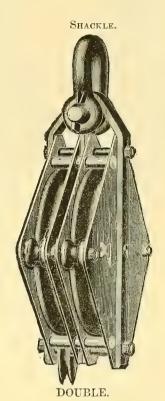


Fig. 517.

		I	RON BUSHE	D.		BRONZE OR	
Size Sheave.	For Rope.	Single.	Double.	Triple.	Single.	Double.	Triple.
10 in. diam. 12 " 14 " 16 " 18 "	58 in. diam. 34 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	\$13.00 15.00 17.00 30.00 34.00	\$19.00 22.00 25.00 39.00 44.00	\$28.00 31.00 36.00 46.00 53.00	\$17.00 19.00 21.00 36.00 40.00	\$26.00 29.00 32.00 50.00 56.00	\$37.00 41.00 45.00 62.00 68.00

All the strain is suspended on the wrought iron straps, which run entire length of the Shell, in Single, Double and Triple.

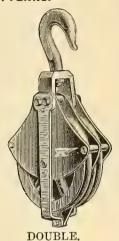
Shells, Sheaves and Pins Galvanized when so required.

WROUGHT IRON BLOCKS FOR WIRE ROPE.

HEAVY PATTERNS.



SINGLE. Fig. 518.



DOUBLE. Fig. 519.

WROUGHT IRON SNATCH BLOCKS FOR WIRE ROPE.



DROP LINK. Fig. 520.



SHACKLE PIN. Fig. 521.

WROUGHT IRON BLOCKS FOR WIRE ROPE.

		I	RON BUSHE	ο,	PHOSPHOR BRONZE OR METALINE SELF-LUBRICATING BUSHED.			
Diam. of Sheave at bot. of Gr've.	For Rope.	Single.	Double.	Triple.	Single.	Double.	Triple.	
10 in. diam.	5 in. diam.	\$14.00	\$20.00	\$28.00	\$17.00	\$26.00	\$37.00	
12 ''	5 44	16.00	23.00	31.00	19.00	29.00	41.00	
14 "	3 11	18.00	25.00	36.00	21.00	31.00	45.00	
16 "	7/8	31.00	40.00	46.00	36.00	50.00	62.00	
18 "	1 "	34.50	45.00	53.00	40.00	56.00	68.00	

WROUGHT IRON SNATCH BLOCKS FOR WIRE ROPE.

Diameter of Sheave, inches			10	12	14	16	18
For Rope, diameter, inches			<u>5</u>	$\frac{3}{4}$	<u>3</u>	7 8	1
Iron Bushed, each			\$16.00	\$18.00	\$20.00	\$28.00	\$38.00
Self-Lubricating Bushed, each			18.00	21.00	24.00	33.00	44.00

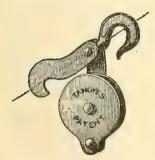


Fig. 522.

WROUGHT IRON SNATCH BLOCKS. ENGLISH PATTERN.

Rope diameter, and Price each.

 $\frac{3}{4}$ $\frac{7}{8}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ 2 $2\frac{1}{4}$ $2\frac{1}{2}$ \$3.15 3.65 5.25 6.30 7.70 9.80 15.00 29.40 35.00

Larger sizes furnished to order.

WOOD SHELL SNATCH BLOCKS.

DROP LINK.





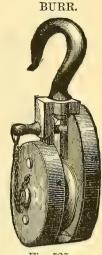


Fig. 524.

Fig. 525.

SIZE SHEAVE.	For Dia. Rope,	Size Shell.	Iron Bushed.	Improved Roller Bushed.	Phosphor Bronze or Metaline Bushed.	Net Extra for Galvanized Straps.
$\frac{3}{8} \times 1\frac{1}{8} \times \frac{1}{2}$	7878	6 inches	\$ 4.00	\$ 4.65	\$ 5.25	\$ 0.20
$3\frac{1}{2} \times 1\frac{1}{4} \times \frac{1}{2}$, ' S	8 "	4.75	5.50	6.00	25
$4\frac{1}{2} \times 1\frac{3}{8} \times \frac{5}{8}$	1	, –	5.75	6.60	7.25	35
5 x 1 ³ x ⁵	11/8	9	6.75	7.75	8.50	40
53 x 17 x 3	$1\frac{1}{4}$	10	8.50	10.00	11.00	65
$6\frac{3}{4} \times 2\frac{1}{8} \times \frac{3}{4}$	1 1	12 ''	10 00	11.50	13.00	90
8 x 2 x x 2	13	14 ''	13.00	15.00	16.50	1.20
$9 \times 2^{\frac{5}{2}} \times 1^{\circ}$	2	16 ''	17.00	20.00	22.00	
10 x 3° x 1	$2\frac{1}{4}$	18 "	25.00	28.50	31.00	
11 x 3 $\frac{1}{2}$ x 1 $\frac{1}{2}$	$2\frac{1}{2}$	50	38.00	43.00	46.00	
$11\frac{3}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$	3	22 ''	55.00	63.00	68.00	
$12\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2}$	24 ''	70.00	78.00	86.00	

DROP LINK.

STEEL SHELL SNATCH BLOCKS.



Fig. 526.

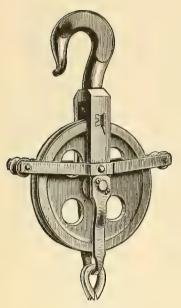
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	SIZE SHEAVE.	For Dia. Ropa.	Size Shell.		Iron Bushed,	Phosphor Bronze or Metaline 1 ushed.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 x 1½ x ½	7/8	6 i	nches	\$ 4.75	\$ 5.50
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$3\frac{1}{2} \times 1\frac{1}{4} \times \frac{1}{2}$	7 8	7	6.6	5.25	6 50
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4) x $1\frac{3}{8}$ x $\frac{5}{8}$		8		6.35	7.65
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$5 \times 1\frac{3}{8} \times \frac{5}{8}$	11	9	6.6	7.50	9.00
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$5\frac{3}{4} \times 1\frac{7}{8} \times \frac{3}{4}$		10	6.6	9.00	10.50
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$6^3_4 \times 2^1_8 \times 3^1_4$		12	* *	11.00	13 00
9 x 25/8 x 1 2 16 ··· 19.00 21.75 10 x 3 x 1 21/4 18 ··· 25.00 28.00	8 $\times 2\frac{1}{4} \times \frac{7}{8}$	13	14	k	14.00	16.25
		2	16	1.4	19.00	21.75
11 v 31 v 1½ 2½ 20 · 36.00 39.50	10 x 3 x 1	21	18	6.6	25.00	28.00
2	11 $\times 3\frac{1}{2} \times 1\frac{1}{4}$	$2\frac{1}{2}$	20	6.1	36.00	39.50
$11\frac{3}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ 3 22 · 52.00 60.50		3	22	* *	52.00	60.50
$12\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ $3\frac{1}{2}$ 24 · · · · · · · · · · · · · · · · · · ·	$12\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$	31	24	* *	72.00	85.00

BURR.

Fig. 527.

WROUGHT IRON CIN BLOCKS FOR WIRE ROPE.

PHOSPHOR BRONZE, SELF-LUBRICATING BUSHED.
STIFF SWIVEL HOOKS.



SINGLE. Fig. 528.

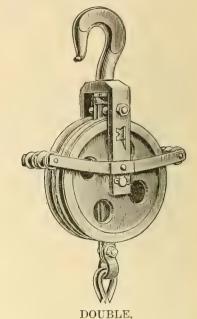


Fig. 529.

Size Sheave.	For Rope.	Description.	Price, Each.
10 in. diameter	½ in. diameter.	Single Double	\$11.00 18.00
12 " "	<u>5</u> 66 66	Single Double	$\frac{12.50}{20.00}$
14 44 44	3 44 44	(Single) Double	15.00 23.00
16 " "	7 66 66	Single	18.00
10	ا در زد) Double) Single	$\frac{27.00}{23.00}$
10	*	} Double } Single	32.00 28.00
20 " "	11/8 44 44) Double	38.00

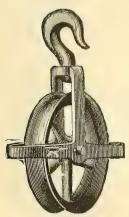
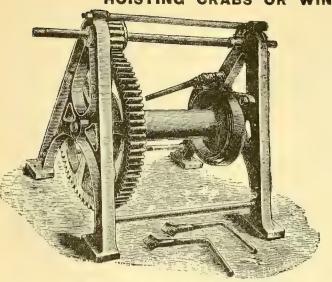


Fig. 530.

WROUGHT IRON GIN BLOCKS FOR MANILA ROPE.

Diameter of Sheave .	6	7	8	9	10	11
For Rope, Diameter .	1	1	1	1 .	1	1
Price, Iron Bush, each	\$3.15	\$3.50	\$3.85	\$4.20	\$4.55	\$5.25
" Rol. Bush, each	4.00	4.40	4.70	5.40	5.75	6.55
" Self-Lubricating,	4.75	5.15	5.50	6.20	6.55	7.35
Diameter of Sheave .	12	14	16	18	20	22
For Rope, Diameter .	1	$1\frac{1}{4}$	1 }	$1\frac{1}{2}$	15	1 1
Price, Iron Bush, each	\$5.80	\$6.30	\$8.40	\$9.80	\$11.90	\$13.30
" Rol. Bush, each	7.10	7.60	9.70	11.10	13.00	14.40
" Self-Lubricating	7.90	8.50	10.70	12.10	14.00	15.50

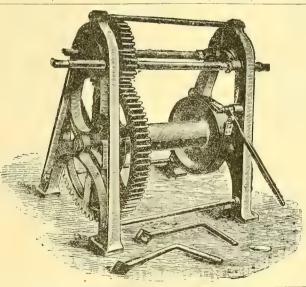
HOISTING CRABS OR WINCHES.



SINCLE PURCHASE.

Fig. 531.

No.	To lift with aid of 2 and 3 Sheave Blocks.	Lift Direct on Barrel.	S'ze of Barrel.	Approximate Weight.	Price with Lever Brake.	Price with Screw Brake.
1	2 tons.	8 ewt.	12x4½ in.	244 lbs.	\$29.00	\$32 50
2	3 "	12 ''	14x41/2 ""	274 "	31.00	34.50
3	4 "	16 "	16x4½ "	342 "	36.00	39 50
4	5 "	20 ''	$18x4\frac{1}{9}$ "	392 ''	42.00	45 50



DOUBLE PURCHASE.

Fig. 532.

No.	To Lift with 2 and 3 Sheave Blocks.	L ft Direct on Barrel.	Size of Barrel.	Approximate Weight.	Price with Lever Brake.	Price with Screw Brake.
12	6 tons,	24 cwt.	19x5 in,	572 lbs.	\$61.00	\$66.00
13	10 ''	40 ''	21x6 "	760 "	77.00	87.00
15	15 ''	60 ''	26x7 "	1100 "	109.00	119.00
17	20 ''	80 ''	30x7 "	1600 "	189.00	199.00

SURE-CRIP STEEL TACKLE BLOCK. WILL HOLD LOAD AT ANY POINT WITHOUT FASTENING THE ROPE.



Fig. 533.

INSTRUCTIONS FOR REEVING.

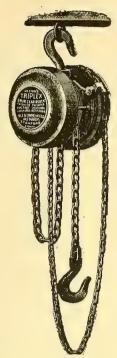
Enter rope at A, pass wedge, and follow arrows as shown in cut. It will be noticed the two center ropes coming in contact with wedge always travel in same direction at same time. Take twist out of rope.

No. 3.	To be used with 3-8 inch rope.	One man can lift 300 lbs.	Capacity, 600 lbs.	\$ 3.00
No. 4.	To be used with 1-2 inch rope.	One man can lift 350 lbs.	Capacity, 1000 lbs.	5.50
No. 5.	To be used with 5-8 inch rope.	One man can lift 400 lbs.	Capacity, 1800 lbs.	7.00
No. 6.	To be used with 3-4 inch rope.	One man can lift 450 lbs.	Capacity, 2500 lbs.	8.50
No. $4\frac{1}{2}$.	To be used with 1-2 inch rope.	One man can lift 600 lbs.	Capacity, 3000 lbs.	10.00
No. $5\frac{1}{2}$.	To be used with 5-8 inch rope.	One man can lift 700 lbs.	Capacity, 3500 lbs.	12.00
No. $6\frac{1}{2}$.	To be used with 3-4 inch rope.	One man can lift 850 lbs.	Capacity, 5000 lbs.	14.00

Can supply Overhead Track; also Trolleys and Hangers for same.

PRICES ABOVE INCLUDE LOWER BLOCK.

THE YALE-WESTON TRIPLEX BLOCKS. SPUR GEARED.



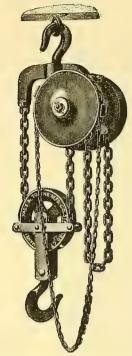


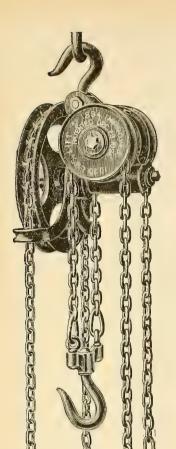
Fig. 534.

Fig. 535.

These have an actual efficiency of 80 per cent., far exceeding that of any other block on the market. This means that only 20 per cent. of the operator's labor is wasted in overcoming friction, showing that this type of block has twice the efficiency of blocks of the Screw-Gear type and triple the efficiency of those of the Differential type. This can be seen by comparing the chain pulls as given in the tables herewith.

Capacity in	Price	*Hoist in	Extra Hoist	Minimum Distance	Net Weight.	‡Chain Pull.	
Tons.	Complete.	Feet.	Price		in Lbs.	Lbs.	Feet
			TRIPLEX-	FIG. 534	•		
$\frac{1}{2}$	\$35.00	8	\$0.90	15 in.	51	62	21
1	45.00	8	.95	17 "	89	82	31
1 1	60.00	8	1.00	$19\frac{1}{2}$ "	133	110	35
$rac{1}{2}$	70.00	9	1.05	24 ''	203	120	42
			TRIPLEX-	FIG. 535			
3	90.00	10	1.50	32 in.	206	114	69
4	110.10	10	1.60	37 **	307	124	84
5 6 8	140.00	12	2.15	45 ''	397	110	126
6	165.00	12	2.15	46 ''	417	130	126
8	200.00	12	2.70	51 "	505	135	168
10	240.00	12	3.25	57 "	622	140	210
12	300.00	12	4.30	57 ''	809	260	126
16	360 00	12	5.40	61 "	1,000	270	168
20	425 00	12	6.50	77	1,150	280	210

^{* ‡} See Page 148.



THE IMPROVED HARRINGTON HOIST.

Weight of Machine	Lift	To Raise	Price	Extra Lift per ft.
35 lbs.	8 ft.	500 lbs.	\$22.50	\$1.00
52 "	8 "	1,000 ''	25.00	1.20
65 "	8	2,000 "	30.00	1.50
76	8 "	3,000 "	40.00	1.75
140	. 9 "	4,000	50.00	2.00
226	10 ''	6,000 **	75.00	2.20
258	10 **	8,000	95.00	2.40
625 ''	12 "	10,000 ''	140.00	3.00
750 ''	12 ''	12,000 ''	180.00	3.75
875 "	12 ''	16,000 ''	210.00	4.00
925 ''	12 ''	20,000 **	275.00	4.25

SHORTEST DISTANCE BETWEEN HOOKS OF

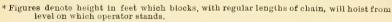
	500-1	bs.	Hoist	is $14\frac{1}{2}$	inches	6,000-	lb.	Hoist is	28	inches
1,	000	44	6.6	16	6.6	8,000	66	6.6	31	6.6
2,	000	"	"	17	6.6	10,000	66	"	39	66
3,	000	66	46	20	6.6	12,000	6.6		39	4.6
4,	000	6.6	6.6	22	4.6	16,000	44	6.6	40	6.6
						20,000	"	4.4	61	66

THE YALE DUPLEX BLOCKS

SCREW GEARED, PATENTED.

Fig. 536.

Capacity	Price	HOIST III	Extra Hoist		Net	‡ Chain Pull.	
in Tons,	Complete.	Feet.	Price per Foot.	Distance be- tween Hooks	Weight in lbs.	Lbs.	Feet.
1/2	\$25.00	8	\$1.25	13 in.	43	68	40
1	30.00	8	1.30	16 ''	57	87	59
$1\frac{1}{2}$	40.00	8	1.35	19	76	94	80
2	50.00	9	1.40	21 "	104	115	93
3	70.00	10	1.50	25 ''	200	132	126
35	80.00	10	1.90	26 ''	210	140	138
4	95.00	10	1.95	29 "	225	142	155
5	125.00	12	2.00	31 "	340	145	195
6	150.00	12	2.80	33 "	360	145	252
7	175.00	12	3.00	34 "	370	160	275
8	200.00	12	3.10	36 "	390	160	310
10	250,00	12	3.20	45 "	570	160	390



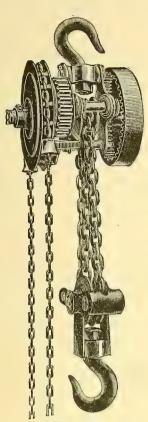
[‡] Figures denote the pull in pounds required to lift the full load, and the number of feet of hand chain which must be handled to lift the load one foot.



Fig. 537.

The improved chain guides permit the use of the block in a horizontal or inclined position. The gearing, composed of a worm-wheel and screw, is enclosed in an oiltight housing, and the working parts are thus always immersed in oil, insuring smooth action and thorough lubrication.

SPEIDEL'S IMPROVED ECONOMIC SAFETY HOIST.



OFFANT, RES TORK

Fig. 538.

Hoist showing Lower Block in Position for Regular or Slow Speed.

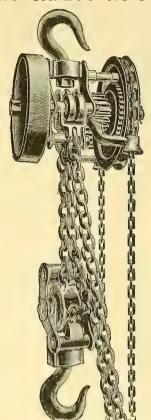


Fig. 539.

Hoist showing Lower Block in Position for the Fast Speed

PRICES, LIFTING CAPACITY, WEIGHT AND HEIGHT OF LIFT.

Safe Working Capacity in Lbs.	Price, Complete with Chain, for Regular Lift.	Regular Height of Lift,	Weight, Complete with Chain for Regular Lift.	of Ex ra Lift, in-	Shortest Distance between Inside of Hooks.
1,000 2,000 3,000 4,000 6,000 8,000 10,000 12,000 16,000 20,000 30,000	\$25.00 30.00 40.00 55.00 75.00 95.00 120.00 140.00 175.00 225.00 300.00	8 ft. 8 ·· 8 ·· 9 ·· 10 ·· 12 ·· 12 ·· 12 ·· 12 ·· 12 ··	47 lbs. 58 " 78 " 110 " 160 " 210 " 285 " 300 " 400 " 600 " 775 "	\$0.90 1.00 1.20 1.30 1.50 1.65 1.90 2.20 2.50 2.60 3.50	16 in. 19 21\frac{1}{2} \cdots 24 2 ft. 4 3 0 3 0 3 5 4 1\frac{1}{2} 4 4

The novel feature of the lower block is the simple and ingenious method of securing two speeds, which is of great value where variable loads have to be lifted. Fig. 538 of above cuts shows the lower block in position for the regular or slow speed, while in Fig. 539 the pawl is locking the hoisting chain to the sheave, thus lifting the load only on one chain. This device is self-disengaging when the load has been hoisted at the fast speed and is lowered below the point from which it has been raised.

WESTON'S DIFFERENTIAL PULLEY BLOCKS.

Call I	
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Capacity in Tons.	Price Com-	*Hoist in	†Extra Hoist Price per	Min. Distarce Between	Net Weight	‡Chain	Pull.
In Tons.	plete.	2 000.	Foot.	Hooks.	in Lbs.	Pounds.	Feet.
1	\$18.00	5	\$2.80	16 in.	11	35	15
$\frac{8}{4}$	18.00	6	2.80	17 ''	22	72	18
1 2	21.00	7	2.80	21 "	30	122	24
1	28.00	8	3.00	26 ''	51	216	30
$1\frac{1}{2}$	36.00	85	3.20	32 ''	81	246	36
2	45.00	9	3.40	39 ''	122	309	42
3	60.00	$9\frac{1}{2}$	4.00	44 "	180	557	38

- * Figures denote height in feet which blocks, with regular lengths of chain, will hoist above level on which operator stands.
- † Each additional foot of hoist requires 4 feet of additional chain.
- ‡ Figures denote the pull in pounds required to lift the full load, and the number of feet of chain which must be handled to lift the load one foot.

PRICES OF PARTS.

Capacity	She	aves.	Yokes ar	nd Hooks.	Pi	Regular Chains Complete.	
in Tons.	Top.	Bottom.	Top.	Bottom.	Top.	Bottom.	Each.
1 1 ½ 2 2 3	\$3.60 4.80 6.00 8.40 12.00 15.60	\$0.90 1.30 1.50 1.90 2.25 3.75	\$3.00 3.75 4.50 5.50 7.50 11.00	\$2.25 3.00 3.75 4.50 5.50 8.00	\$0.40 .50 .50 .60 .60	\$0.30 .40 .40 .50 .50	\$10.50 12.50 17.00 21.59 27.00 36.00

HAND TRAVELING CRANE, WITH SINGLE "I" BEAM.

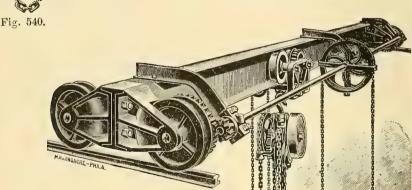


Fig. 541.

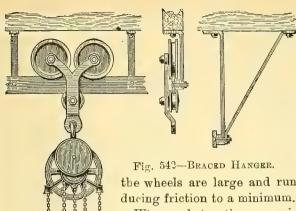
Cut shows Crane with geared bridge and Trollev. The bridge is made of a single "I" beam with trolley running on its lower flange. All motions are effected by endless hand chains from the floor and are as follows:

Hoisting and lowering, two speeds; bridge travel, one speed; trolley travel, one speed.

Bridge and trolley wheels are turned in the grooves, have anti-friction roller bearings, and work very freely without a jar. These cranes are built strong and durable and cause no vibration. Light cranes of the single "I" beam style are made without gearing, the bridge and trolley being moved by pushing the load; this latter type is the kind of cranes used in ice factories.

For traveling cranes state maximum load, distance from floor to top of rails and from top of rail to ceiling or roof truss, also distance from centre to centre of rails and distance between walls or posts.

SPECIAL PRICES ACCORDING TO REQUIREMENTS.



SHORT HANGERS.

COSTACT

SC TO

OVERHEAD TROLLEYS

SINGLE TRACK, FLAT IRON RAIL,

Wrought Iron Hanger and Plain Trolley.

The rail and hangers are made of wrought iron, and are to be bolted directly to the ceiling or overhead timbers. Trolleys have large and well fitted s'eel pins, and

the wheels are large and running on anti-friction rollers, reducing friction to a minimum.

Where obstructions are in the way, the braced hangers (shown to the right), can be made deep enough to clear shafting, pipes, belts, etc.

PRICE, CAPACITY AND LENGTHS BETWEEN HANGERS.

Capacity in Pounds,	Largest Distance C to C Hangers.	Price of Rail Per Ft	Price of Short Han- ger, Each	Price of Trolley.	Price of Each Curve.	Price of Switch for Regular Lift of Hoist,
500	8 ft. 0 ins.	\$0.30	\$0.90	\$ 9.75	\$0.75	\$27.75
1,000	6 " 0 "	.40	1.00	10.50	.85	28.50
1,500	6 " 0 "	.50	1.15	11.25	1.10	29.25
2,000	6 " 6 "	.65	1.40	12.00	1.50	30.00
3,000	5 " 0 "	$\cdot 75$	1.70	13.50	1.50	31.50
4,000	5 " 6 "	.90	2.00	15.00	1.85	33.75
5,000	5 " 0 "	1.00	2.20	16.50	2.00	34.25
6,000	5 " 0 "	1.10	2.40	18.00	2.25	35.00

IMPROVED OVERHEAD TRAMWAY SWITCH.

To be used in Connection with Either Style of Track.

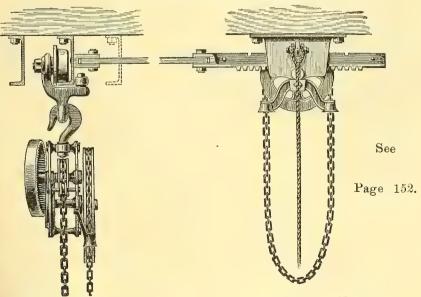
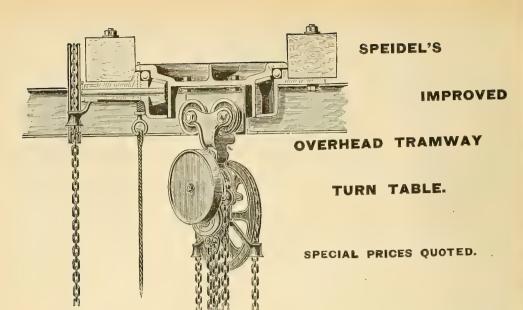
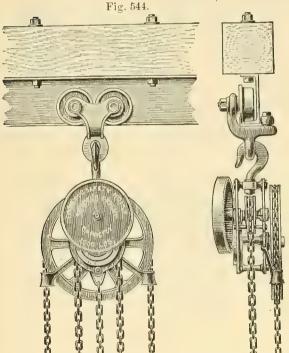


Fig. 543.—End View.

Fig. 543.—Side View.





OVERHEAD

TRAMWAYS.

SINGLE TRACK WITH PLAIN TRAVELER AND OVERHEAD TRAMWAY WITH CHANNEL BEAM RAIL.

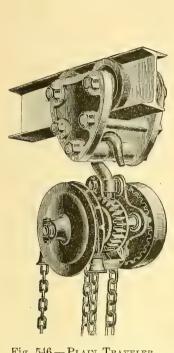
This style of tramway can be bolted directly to the ceiling, and is a very convenient form for warehouses, mills, factories, etc.

The trolleys have large and wellfitted steel pins, and the wheels run on anti-friction rollers, reducing friction to a minimum.

PRICES, CAPACITY AND LENGTHS FOR CHANNEL BEAM RAILS, AS GIVEN BELOW.

T há	A 573 CF				
Fig. 545	. Side View.	Fig. 545.	END VIEW.		
Capacity in Pounds.	Largest Distance between Hanger Bolts.	Price per Foot.	Price Trolley.	Price of Each Curve.	Price of Switch for Regular Lift of Hoist.
500	6 ft.	\$0.30	\$8.50	\$2.50	\$26.25
1,000	5 ''	0.35	9.00	2.75	27.00
1 500	6	0.40	10,00	3.25	27.75
2,000	5 "	0.45	11.00	3.50	28.50
3,000	6 "	0.50	12.75	3.75	29.25
4,000	5 "	0.55	13.50	4.00	30.00
5,000	6 "	0.65	16.50	4.50	31.50
6,000	5 "	0.75	18.00	5.00	33.00
-,		1	52		

OVERHEAD TRAMWAYS. SINGLE OVERHEAD TRACK TRAMWAY WITH GEARED TRAVELER "I" BEAM RAIL.



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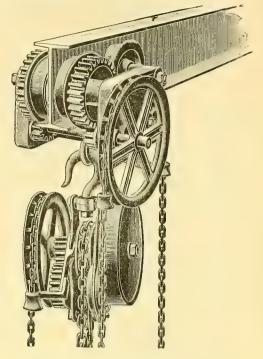


Fig. 546 — PLAIN TRAVELER.

Fig. 547 — Geared Traveler.

The tramways can be bolted directly to the ceiling or supported on trussels, and are well adapted for foundries, machine shops, warehouses, stone yards, ship yards, etc.

These types are made with either plain or geared trolley; for loads upward of two or three tons it is best to use the geared trolleys, and where loads have to be moved carefully and without jerking, as in foundries in handling moulds, etc., the geared trolley is a necessity. The geared trolley is moved and operated by an endless hand chain from the floor.

In writing for prices, give maximum load to be carried and distance from centre to centre of supports, if such are given, and the distance from floor to ceiling or overhead timbers.

PRICES AND CAPACITIES.

PLAIN T	RAVELER.	GEARED TRAVELER.				
CAPACITY IN POUNDS.	PRICE OF TRAVELER.	CAPACITY IN POUNDS.	PRICE OF TRAVELER.			
500	\$12.75	3,000	\$ 57.50			
1,000	13.50	4,000	60.00			
1,500	14.25	5,000	62.50			
2,000	16.00	6,000	67.50			
3,000	18.00	8,000	75.00			
4,000	20,25	10,000	87.00			
5 000	24.00	12,000	93.75			
6,000	33.75	16,000	112.50			
8,000	36.00	20,000	120.00			
10,000	37.50					

Prices for switches same as for Channel and "I" Beam rails.

Prices of geared travelers apply to length of chain suitable for hoists with regular height of lift. For extra height add 40c. for each foot of additional lift.

When ordering or writing for prices of overhead tramways, please state which style of track is desired and give maximum load to be handled; where long hangers are required give the distance between overhead timbers and trolley wheels, clearing all obstructions; state length of track required, whether straight or curved, in the latter case showing on a plain sketch location of the curves, etc.

"CUM-OLEO."

(TRADE MARK.)

A WIRE ROPE LUBRICANT AND PRESERVATIVE.

FOR ELEVATOR USE.

IS A NEUTRAL PRODUCT. IT PREVENTS AND DESTROYS RUST. KEEPS THE ROPES ALWAYS PLIABLE. PREVENTS STRAND FRICTION. REDUCES DRUM AND SHEAVE FRICTION.

PROLONGS THE LIFE OF ROPE. ODORLESS.

DIRECTIONS FOR USING "CUM-OLEO."

- Apply with a Brush.
- Do not use in excess and let a reasonable time elapse between applications. 2.
- In a short time the rope will be filled internally and coated externally, thereby preventing strand and drum friction.
- After the rope is coated, keep the coating fresh by an occasional application. 4.
- KEEP YOUR DRUMS CLEAN! If the coating adheres to the drum, it indi-5. cates an excessive use of the material.

Sold in One Gallon Cans only, Per Gallon, \$2.00

BURNET IMPROVED CABLE COATING.

For the protection and preservation of Wire Ropes and Cables under any condition of use or idleness on

TRACTION ROADS, TRAMWAYS, POWER TRANSMISSION, MINE HAULAGE AND HOISTS. STANDING RIGGING, ETC.

Burnet Cable Coating if properly applied will render perfect service at a merely nominal expense.

- It is a neutral product, free of grit or extraneous matter of any kind.
- It is uniform in quality and consistency, and requires no manipulation or ad-2. dition of other oils.

BUNNET CUMPANT, NEW TORN

- It prevents rust and destroys and eliminates rust already formed. 3.
- It fills the rope internally, and coats it completely externally, preventing strand friction and decreasing drum and sheave friction.
- Its use prolongs the life of the rope. 5.

DIRECTIONS FOR USING ON WIRE CABLE.

- Feed in a small stream about the size of a broom straw on the outgoing cable, 1. using any simple device as a spreader to make it cover evenly, and to prevent over-feeding. Continue this operation for one or two turns at a time.
- On a vertical rope apply with a brush, or waste. 2.
- Used in this way the cable fills slowly but surely, and will present a smooth 3.
- After outside coat is formed, use only sufficient quantity to keep it smooth and moist; special care must be taken not to use it in excess.
- When the cable is wet do not apply the coating. 5.
- Drums and Sheaves must be kept perfectly clean at all times.
- Any signs of "Gumming, Fluffing or Peeling off" of coating, indicates one or more of the following conditions:

FIRST.-That too much material is being used. SECOND,-That the cable was wet when applied. THIRD .- That the Sheaves are not clean.

Sold in Barrel Lots only, . Per Gallon, \$0.30

APPROXIMATE WEIGHT, STRENGTH AND LENGTH OF ROPE

Size in Circumference,	Size in Diameter.	Weight of 1000 feet.	Weight per fathom.	Strength of Manila Rope, lbs. Sisal Rope about 25 per cent less	one	mber of set in pound.	Tarred Hemp Rope, Weight of 1000 feet.	Weight per fathom.
3	1	30		200	Feet	inches		
3(00 –(1433)-4	-1803/6-1445/663/807/6-1209/65/803/45/67-18	35		300	75			
3	16	$\frac{55}{45}$		540	60			
$1^{\overline{4}}$	4			780	40		54	
	1 6 3	55		1000	30		69	
$1\frac{1}{8}$ $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{2}{4}$	8	65 75		1280	23		73	
17	16	75	* * * *	1560	16	8	86	
13	2	85	$\frac{1}{2}$	2250	12	9	98	<u>5</u> 8
17	16	110	3	3060	9	8	135	35
2	8 3	140	5	4000	7	6	162	1
24 24 24 24 3	4 2	170	1	5000	6		214	$1\frac{1}{4}$
25	韓	200	$1\frac{1}{5}$	6250	5		263	1_{10}^{4} 1_{4}^{3} 2
$\frac{24}{9}$	4 8	240	$1\frac{2}{5}$	7500	4	3	290	$1\frac{3}{4}$
3	1	275	$1\frac{3}{5}$	9000	3	8	347	2
34 35 34	$1_{\frac{1}{4}\overline{6}}$	325	2	10500	3	2	400	$2\frac{1}{2}$ $2\frac{3}{4}$
3 1/2	$1\frac{1}{8}$	360	21	12250	2	10	455	23
34	$\overline{1}_{\frac{3}{4}6}^{3}$	410	25	14000	2	5	526	3
4	$\frac{1\frac{1}{4}}{1\frac{3}{8}}$	460	3	16000	2	3	620	$ \begin{array}{r} 3\frac{1}{4} \\ 3\frac{2}{4} \\ 4\frac{1}{4} \end{array} $
$\begin{array}{c} 4\frac{1}{4} \\ 4\frac{1}{2} \\ 4\frac{3}{4} \\ 5 \end{array}$	$1\frac{3}{8}$	510	$3\frac{1}{2}$ $3\frac{3}{4}$	18000	2		719	33
$4\frac{1}{2}$	$1\frac{1}{1}\frac{8}{6}$	585	$3\frac{3}{4}$	20250	1	8	781	$4\frac{1}{4}$
$4\frac{3}{4}$	$1\frac{1}{2}$ $1\frac{5}{8}$ $1\frac{34}{78}$	64 0	$4\frac{1}{5}$	22500	1	7	870	5
	$1\frac{5}{8}$	720	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	25000	1	5	932	
$5\frac{1}{2}$	$1\frac{3}{4}$	835	$5\frac{3}{4}$	30250	1	3	1190	$\frac{5\frac{1}{2}}{6\frac{1}{2}}$
6	1 7	1050	$6\frac{3}{4}$	36000		$11\frac{1}{2}$	1400	8
61	2	1150	7홍	39000		$10\frac{2}{3}$	1525	$8\frac{1}{2}$
$6\frac{1}{2}$		1250	8	42250		93	1688	92
7	$2\frac{1}{4}$	1425	$9\frac{1}{4}$	49000		$8\frac{1}{2}$	1906	10
$7\frac{1}{2}$	2.24.28 9.6 2.24.28 9.6 2.124.78	1700	$10\frac{1}{2}$	56250		$10^{\frac{2}{2}}_{934}$ $8^{\frac{1}{2}}_{121}$ $5^{\frac{1}{2}}$	2188	$12\frac{1}{2}$
8 *	2 1 6	2000	$12\frac{1}{4}$	64000		$5\frac{1}{5}$	2562	14
$8\frac{1}{2}$	$2\frac{3}{4}^{\circ}$	2300	$13\frac{1}{4}$	72250		$\overline{5}$	2875	$\hat{1}\hat{6}$
9	27	2650	16	81000		$4\frac{1}{2}$	3312	20
93	3	3000	$17\frac{2}{5}$	90250		4	3625	$\frac{22}{22}$
10	$3\frac{3}{16}$	3400	20	100000		31	4187	$\frac{2}{2}$
11	οÎ	4000	244	118000		$2\frac{1}{10}$	5094	28
12	32	4700	$28\frac{1}{2}$	135000		$2\frac{1}{2}$	5938	35
13	$4\frac{1}{4}$	5650	34	156000		$2\frac{1}{8}$	7060	41
14	$4\frac{7}{8}$	6500	391	211000		14	8190	48
15	$\frac{18}{5\frac{1}{2}}$	7500	$45\frac{1}{4}$	230000		$1\frac{4}{5}$ $1\frac{6}{10}$	9438	56
	0.2	.000	14	-		-10	0 190	00

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Weights of Rope are liable to vary, either way. The Working Strain is about one-third of the Breaking Strain. Basis is price for $\frac{7}{16}$ inch diameter (1½ inch circumference) and upwards.

THE FOLLOWING ARE EXTRA ABOVE BASIS.

12 Thread or $\frac{3}{8}$ inch of and 9 thread, $\frac{1}{4}$ and	liameter										1 2	cent.	per	pound.
6 and 9 thread, $\frac{1}{4}$ and	d 5 inc	h diame	eter								1	4.6	- 6.6	* **
6 Thread or 3 inch	diamete	er .									11	6.6	6	k k
6 Thread or $\frac{3}{16}$ inch 6											2	4.6	* *	4.6
Bolt rope (Manila)											$1\frac{1}{2}$	6 &	4.6	+ 6
TRANSMISSION ROPE.														
Standard sizes	$\frac{7}{8}$	1	1 2	1 3	$1\frac{1}{4}$		13	3	1	1.		$1\frac{3}{4}$		2
HOISTING ROPE.														
Standard sizes	1	1 ½	1	$\frac{1}{4}$	$1\frac{3}{8}$		1.	1		15		$1\frac{3}{4}$		

Transmission and Hoisting Rope is made from the best selected Cebu Manila Hemp, especially prepared for the transmission of Power and Hoi ting purposes, the former, for transmission of Power, to run at high speed, the latter, for hoisting purposes of every description, coal falls, derrick and quarry rope, pile driving, etc.





STANDARD HOISTING ROPE.

Composed of 6 Strands and a Hemp Centre.

Nineteen Wires to the Strand.

Fig. 548.

SWEDISH IRON.

Trade Number	Price in cts.	Diameter in inches.	Ap. circum- ference in inches.	Weight per foot in lbs.	Ap. breaking strain in tons of 2,000 lbs.	Allowable work strain in tons of 2,000 lbs.	Min. size of drum or sheave in ft.
	170	2^{3}_{4}	$8\frac{5}{8}$	11.95	114	22.8	16
	140	$2\frac{1}{3}$	7^{i}_{s}	9.85	95	18.9	15
1	117	21	$7\frac{1}{8}$	8.00	78	15.60	13
$\tilde{2}$	92	2	$6\frac{7}{4}$	6.30	62	12.40	12
3	80	1_{4}^{3}	$5\frac{1}{2}$	4.85	48	9.60	10
4	63	15	5	4.15	42	8.40	81
$\hat{\bar{5}}$	57	14	43	3.55	36	7.20	7 }
$\overset{\circ}{5}^{\frac{1}{2}}$	48	13	$\hat{4}^{\frac{1}{4}}$	3.00	31	6.20	7½ 7
62	40	18	$\tilde{4}^4$	2.45	25	5.00	$6\frac{1}{2}$
7	33	11	$3\frac{1}{2}$	2.00	21	4.20	6
8	26	1	3	1.58	17	3.40	$5\frac{1}{4}$
ğ	20	7		1.20	13	2.60	41
10	16	7 8 3	$2\frac{3}{4}$ $2\frac{1}{4}$	0.89	9.7	1.94	$rac{4rac{1}{2}}{4}$
10^{1}_{4}	12	<u>\$</u>	$\tilde{2}^4$	0.62	6.8	1.36	$3\frac{1}{2}$
101	10	5 8 18	$\tilde{1}_4^3$	0.50	5.5	1.10	$2\frac{3}{4}$
$10\frac{3}{4}$	8		11	0.39	4.4	0.88	$2\frac{1}{4}$
10a	71	.72	11	0.30	3.4	0.68	2
10b	7	1 6 3	11	0.22	2.5	0.50	11/2
10c	63	Hander Fe	18	0.15	1.7	0.34	12
10d	$6\frac{4}{5}$	7 6 1 4	3, 4	0.10	1.2	0.24	3 4

Note -Siemens-Martin Steel | ope, same price as Iron Rope.

CAST-STEEL

			CAST-S	TEEL.			
	210	$2\frac{3}{4}$	$rac{85}{7rac{2}{8}}$	11.95	228	45.6	10
	175	$2\frac{1}{2}$ $2\frac{1}{4}$	77	9.85	190	37.9	$\frac{9^{\frac{1}{2}}}{8^{\frac{1}{2}}}$
1	142	$2\frac{7}{4}$	$7rac{7}{8}$	8.00	156	31.2	$8\frac{7}{3}$
2 3	111	2*	$6\frac{?}{4}$	6.30	124	24.8	e^{z}
3	93	$1\frac{3}{4}$	$5\frac{1}{2}$	4.85	96	. 19.2	$7\frac{1}{4}$
4	74	15 15 18	5	4.15	84	16.8	$6\frac{1}{4}$
5	66	11	$4\frac{3}{4}$	3.55	72	14.4	$5\frac{3}{4}$
$5\frac{1}{2}$	56	13	$4\frac{1}{4}$	3.00	62	12.4	$5\frac{1}{2}$
6	46	$1\frac{T}{4}$	4	2.45	50	10.0	5
7	38	1호	3^{5}	2.00	42	8,40	$4\frac{1}{2}$
8 9	30	1	3	1.58	34	6.80	4
	23	7 8	$2\frac{3}{4}$	1.20	26	5.20	31
10	18	3	$2\frac{3}{4}$ $2\frac{1}{4}$	0.89	19.4	3.88	$\frac{3}{2}$
$10\frac{1}{4}$	14	5	2	0.62	13.6	2.72	$2\frac{1}{4}$
$10\frac{1}{2}$	12	5 8 9 16	$1\frac{3}{4}$	0.50	11.0	2.20	$\frac{2\frac{1}{4}}{1\frac{3}{4}}$
$10\frac{3}{4}$	11	į.	$\frac{1\frac{1}{2}}{1\frac{1}{4}}$	0.39	8.8	1.76	$\frac{1\frac{1}{2}}{1\frac{1}{4}}$
10a	10	76	14	0.30	6.8	1.36	$1\frac{1}{4}$
10 <i>b</i>	$9\frac{1}{2}$	38	$1\frac{1}{8}$	0.22	5.0	1.00	1
10e	$9\frac{1}{1}$	7 7 d 3 8 1 d	1	0.15	3.4	0.68	2/2
10d	9	1 4	3 4	0.10	2.4	0.48	3

Note. - When the Iron or Steel Rope named above is Galvanized or Tinned, add 10 per cent. to list price per foot-When made with Wire Centre, add 10 per cent. to list price per foot.

This rope is almost universally employed for hoisting purposes on account of its flexibility. It is made of six strands, each of which is formed by twisting nineteen wires together, and a hemp core or center. Sometimes the hemp center is replaced by a wire strand, which adds from seven to ten per cent to the strength of the rope; but the wear on the center is as great as on the outside strands, and its use is not generally advised.

The Standard Hoisting Kope is very pliable, and will wind on moderate-sized drums and pass over reasonably small sheaves without injury. Where it is possible, drums and sheaves larger than those indicated in the lists should be adopted, particularly when high speeds are employed or when the working strain is greater than one-fifth of the breaking strain, because the bending of a rope around a sheave is more destructive the heaver the strain on the rope and the smaller the sheave.

In substituting steel for iron, it is well to use the same size of rope, thereby taking full advantage of the increased wearing capacity of steel over iron. The best steel is the only one to use, as inferior grades are not as serviceable as good iron, because the constant vibrations to which ropes are subjected cause the poor steel to become brittle and unsafe.

TRANSMISSION OR HAULAGE ROPE.

COARSE-LAID ROPE.

Composed of 6 Strands and a Hemp Center. 7 Wires to the Strand.



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 $\frac{21}{24}$

Fig. 549.

SWEDISH IRON.

Number. Cents eter in Circumfer- Foot in Tons of in Tons of in Tons of 2000 Pounds.	III I CCV.
$\frac{11}{11}$ 51 $\frac{11}{2}$ $\frac{43}{4}$ 3.55 34 6.80 1	3
10 10 13 11	$\overset{\circ}{2}$
19 96 11 4	$\tilde{0}_{4}^{3}$
$14 29 1\frac{1}{8} 3\frac{1}{2} 2.00 20 4.00$	91
15 23 1 3 1.58 16 3.20	8Î
$16 17\frac{1}{2} \frac{7}{8} 2\frac{3}{4} 1.20 12 2.40$	7 1
$\frac{17}{14}$ $\frac{3}{4}$ $2\frac{1}{4}$ 0.89 9.3 1.86	$6\frac{3}{4}$
18 12 $\frac{11}{18}$ $2\frac{1}{8}$ 0.75 7.9 1.58	$\tilde{6}^4$
$19 10 \frac{3}{2} 2 0.62 6.6 1.32$	$5\frac{1}{4}$
$\frac{20}{16}$ 8 $\frac{9}{16}$ 1 $\frac{3}{4}$ 0.50 5.3 1.06	4.
	4
$22 5\frac{1}{2} 7\frac{7}{6} 1\frac{1}{4} 0.30 3.3 0.66$	$3\frac{1}{4}$
$23 4\frac{1}{2} \frac{3}{8} 1\frac{1}{8} 0.22 2.4 0.48$	$2^{\frac{1}{3}}$
$24 3\frac{5}{4} \frac{5}{16} 1$ 0.15 1.7 0.34	$2\frac{1}{5}$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$2\frac{7}{4}$

Note. - Siemens-Mart'n Steel Rope, same price as Iron Rope.

CAST-STEEL.

11	60	15	43	3.55	68	13.6	84
12	51	13/8	$4\frac{1}{4}$	3.00	58	11.6	8
13	43	$1\frac{1}{4}$	4	2.45	48	9.60	71
14	36	1 <u>-</u>	$3\frac{1}{2}$	2.00	40	8.00	$6\frac{1}{4}$
15	28	1	3	1.58	32	6.40	$5\frac{3}{6}$
16	22	7 8	$2\frac{3}{4}$	1.20	. 24	4.80	5*
17	16	3 <u>.</u>	$2\frac{i}{4}$	0.89	18.6	3.72	41
18	$13\frac{1}{2}$	$\frac{1}{16}$	$2\frac{1}{2}$	0.75	15.8	3.16	4
19	11	1 5 g	2	0.62	13.2	2.64	$3\frac{1}{2}$
20	9	9 7 6	13	0.50	10.6	2.12	3 ~
21	71	3	1 5	0.39	8.4	1.68	$2\frac{1}{3}$

0.30

0.22

0.15

0,125

Note.—When the Iron or Steel Rope named above is Galvanized or Tinned, add 10 per cent. to list price per foot. When made with *Wire centre*, add 10 per cent. to list price per foot.

6.6

4.8

3.4

2,8

1.32

0.96

0.68

0.56

This rope is much stiffer than Standard Hoisting Rope. It is made of six strands, each of which is composed of seven wires, and a hemp core or centre. It may have, if it is so desired, a wire centre, which adds from seven to ten per cent. to its strength, but it is then open to the objections already noted in remarks about Standard Hoisting Rope.

The wires of this variety of rope are one and two-third times greater in diameter than those of the Standard Hoisting Rope, and hence the rope is much less pliable and will not bend around as small sheaves. It is well adapted for haulages and transmissions, because the wires are large and are not quickly worn through. It will resist the rough usuage of mine haulages and the great wear due to passing over a large number of pulleys and rollers.

The wires are fewer in number, however, and a greater factor of safety is desirable than for hoisting rope, because the breakage of one or two wires takes away a considerable amount of the total strength. In using steel, instead of iron rope, it is necessary to have the best quality.

For transmissions, the sizes from 1g inch diameter down give excellent satisfact on, when properly selected.

Both the regular and Lang constructions are extensively used for haulages and inclined planes.

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EXTRA STRONG CRUCIBLE CAST-STEEL ROPE.

Composed of 6 strands and a Hemp Centre; 19 Wires to the Strand.

Approximate Allowable Work-

	g.	5		

Trade Number,	Price in Cents per Foot.	Diam- eter in Inches.	Approximate Circumfer- ence in Inches.	Weight per Foot in Pounds.	Breaking Strain in Tons of 2000 Pounds.	ing Strain in Tons of 2000 Pounds.	Minimum Size of Drum or Sheave in Feet.
	255	$2\frac{3}{4}$	85	11.95	266	53	10
٠.	$\frac{255}{210}$	21	77	9.85	222	45	$9\frac{1}{2}$
1	170	$2\frac{1}{2}$ $2\frac{1}{4}$	7 3	8.00	182	36.4	$8\frac{1}{2}$ 8
2	134	$\tilde{2}^4$	$6\frac{5}{4}$	6.30	144	28.8	8
3	115	$\tilde{1}^{3}_{-}$	$5\frac{1}{2}$	4.85	112	22.4	$7\frac{1}{4}$
4	91	15	5	4.15	97	19.4	$6\frac{1}{4}$
5	80	1 %	4^{3}_{4}	3.55	84	16.8	5^{3}_{4}
5 <u>}</u>	67	1 3 8	$4\frac{1}{4}$	3.00	72	14.4	$\frac{5^{\frac{7}{2}}}{5}$
6	55	14	4	2.45	58	11.6	
7	45	$1\frac{1}{8}$	$\frac{3\frac{1}{2}}{3}$	2.00	49	9.80	$4\frac{1}{2}$
8	36	1°		1.58	39	7.80	$\frac{4}{3\frac{1}{2}}$
9	28	7	$2\frac{3}{4}$	1.20	30	6.00	$3\frac{1}{2}$
10	22	3/4	$egin{array}{c} 2rac{\mathrm{i}}{4} \ 2 \end{array}$	0.89	22	4.40	
104	163	3	2	0.62	15.8	3.16	$2\frac{1}{4}$
$10\frac{1}{2}$	14	9 T.E	$1\frac{3}{4}$	0.50	12.7	2.54	1_{4}^{3}
$10\frac{3}{4}$	121	10	$1\frac{7}{3}$	0.39	10.1	2.02	$1\frac{1}{2}$
10a	11\\\\\	7	$1\frac{1}{4}$	0.30	7.8	1.56	$1\frac{1}{4}$
105	11	3	1 k	0.22	5.78	1.15	1
10c	$10\frac{3}{4}$	1 K	1	0.15	4.05	0.81	$\frac{\frac{2}{3}}{\frac{1}{2}}$
10d	$10\frac{7}{2}$	\$\\\alpha \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\frac{3}{4}$	0.10	2.70	0.54	$\frac{1}{2}$





EXTRA STRONG CRUCIBLE CAST-STEEL ROPE.

Composed of 6 Strands and a Hemp Centre: 7 Wires to the Strand.

		Tig	· OOT.				
Trade Number.	Price in Cents per Foot.	Diameter in Inches.	Approximate Circumfer- ence in Inches,	Weight per Foot in Pounds.	Approximate Breaking Strain in Tons of 2000 Pounds.	Allowable Work- ing Strain in Tons of 2000 Pounds.	Minimum Size of Drum or Sheave in Feet.
11	75	11/2	$4\frac{3}{4}$	3.55	79	15.8	$\frac{8\frac{1}{2}}{8}$
12	64	1 3	$4\frac{1}{4}$	3.00	68	13 6	
13	53	1 <u>?</u>	4	2.45	56	11.2	$7\frac{1}{4}$
14	44	1 .	$3\frac{1}{2}$	2.00	46	9.20	$6\frac{1}{4}$
$\hat{1}\hat{\tilde{5}}$	34	18	32	1.58	37	7.40	$rac{6rac{1}{4}}{5rac{3}{4}}$
16	26	2	$2\frac{3}{4}$	1.20	28	5.60	5*
17	20	3	21	0.89	21	4.20	$4\frac{1}{2}$
18	17 17	141	21	0.75	18.4	3.68	$\overline{4}^{z}$
19	14	î है 5 8 9 7 ह	$\frac{2^{\frac{1}{8}}}{2}$	0.62	15.1	3.02	$3\frac{1}{2}$
20	111	-9_	13	0.50	12.3	2.46	3
21	$9\frac{1}{3}$		11	0.39	9.70	1.94	
22	$7\frac{1}{4}$	\$ 7 F	11	0.30	7.50	1.50	$2\frac{1}{2\frac{1}{4}}$.
23	$6^{\frac{1}{4}}$) § 3 8	11	0.30	5.58	1.11	$\tilde{2}^4$
		8	1 3	0.15	3,88		
24	$5\frac{1}{2}$	1 6	7			0.77	13
25	5	8 2	\$	0.125	3.22	0.64	11

Note.—When the Rope named above is Galvanized or Tinned, add 10 per cent. to list price per foot.

When made with Wire centre, add 10 per cent. to list price per foot.

This variety of rope is regularly made with seven or nineteen wires to the strand. It may, however, be ordered with any number of strands and wires desired.

It possesses great strength and toughness, occupying a place intermediate between standard

crucible steel rope and plough-steel rope.

It is made of a high grade of crucible cast-steel, especially prepared, so as to give tensile strength and other physical properties, which fit it for heavy work.





TILLER ROPE.

Composed of 6 Ropes and a Hemp Centre.

Each Rope consisting of 6 Stands of 7 Wires each and a Hemp Core.

	Fig. 552.			
	ents per Foot.	Diameter in	Approximate Circum-	Weight per Foot in
Iron.	Cast steel.	Inches.	ference in Inches.	Pounds.
33	43	1	3	1.10
27	36	7	23	0.84
22	30	<u>\frac{3}{4}</u>	$2\frac{7}{4}$	0.62
17	24	$\frac{7}{8}$	2°	0.43
14	19	9 T 6	$1\frac{3}{4}$	0.35
11	17	1/2	$1\frac{i}{3}$	0.28
10	15	7 7 E	$1\frac{\tilde{1}}{4}$	0.21
9	14	7 e 3	1 1	0.16
8	$12\frac{1}{2}$	75	1 "	0.11
71	11	10	3	0.07

Tiller Ropes are used for steering ropes on river steamers, for hand ropes on elevators, and in any place where a smooth and extremely flexible rope is required. They are composed of 252 wires, and are made up of a hemp core, around which are twisted six ropes, each of which consists of six strands, inclosing a hemp centre. They will pass around very small pulleys and sheaves. The wires are necessarily very fine, and should not be subjected to scraping of any kind or much frictional wear.



BURNET COMPANY,

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CALVANIZED IRON WIRE ROPE

FOR SHIPS' RIGGING AND DERRICK GUYS.

Composed of 6 Strands and a Hemp Centre, 7 or 12 Wires to the Strand.

	Fig	. 553.				
Price in Cen With 7 Wires to the Strand,	ts per Foot.	Approximate Diameter in Inches.	Circumference in Inches,	Weight per Foot in Pounds	Approximate Breaking Strain in Tons of 2000 Pounds.	Circumference i Inches of New Manila Rope of Equal Strength
44	46	13	53	4.85	44.	11
41	43	111	$5\frac{3}{4}$	4.40	40.	$10\frac{1}{2}$
99	40	15	5	4.00	36.	10
ა მი 35	37	1 5	43	3.60	32.	9 }
31	33	1-7-	• 41/2	3.25	29.	9
27	29	138	$4\frac{1}{4}$	2.90	26.	81/2
24	25	1 4	4	2.55	23.	8
21	$\frac{22}{22}$	1 3 6	$\tilde{3}_{4}^{3}$	2.25	20.	$egin{array}{c} 8 \\ 7 \frac{1}{10} \\ 6 \\ 5 \\ \frac{3}{4} \\ 5 \\ \end{array}$
18	$\tilde{19}$	116	31	1.95	18.	6_{5}^{1}
16	17	1 1 5	$3\frac{1}{4}$	1.70	15.	6
14	15	1 1 6	3	1.44	13.	$5\frac{3}{4}$
12		1		1.21	11.	$5\frac{1}{4}$
10			$2\frac{9}{4}$ $2\frac{1}{2}$ $2\frac{1}{1}$ 2	1.00	9.0	5
9		36	21	0.81	7.3	$egin{array}{c} 4^{rac{3}{4}} \ 4^{rac{1}{4}} \ 3^{rac{1}{4}} \ 3^{rac{1}{2}} \ 2^{rac{1}{2}} \ 2^{rac{1}{4}} \end{array}$
		4 5	21	0.64	5.8	$4\frac{1}{3}$
8		8,9	ĩ 3	0.49	4.4	$3\frac{5}{4}$
7		76	11	0.36	3.2	3*
\tilde{e}		<u> </u>	12	0.25	2.3	$2\frac{1}{5}$
5		36	11	0.20	1.8	$2\frac{1}{4}$
4		<u>s</u>	1 k	0.16	1.4	2*
31		16	1	0,10		
5 Strands, 7 Wires Each.						4.2
3		9	7 8	0.123	1.1	$\frac{1}{4}\frac{2}{4}$
$2\frac{1}{2}$		1 2	63°459	0.090	0.81	134 134 14 14 14 18
$2\frac{1}{4}$		77.0	55	0.063	0.56	$\frac{1}{4}$
24		77 77 77 77 77 77	1	0.040	0.36	1 1/8

Note.—When made with wire centre, add 10 per cent. to p ice per foot.

Galvanized rope is much better for guys for derricks than hemp rope or rods linked together. If galvanized rope of greater strength than that men ioned in the table is desired, we are prepared to furnish open-hearth, cast-steel or plough-steel wire rope, suitably galvanized, instead of iron wire rope.

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PLOW STEEL ROPE.

Composed of 6 Strands and a Hemp Center, 19 Wires to the Strand.

Allowable

Working

Minimum

Size of

Approximate

Breaking

Fig. 554.

					Dicouning	Ct	70
Trade	Price in Cents	Diameter	Approximate	Weight per	Strain in	Strain in	Drum or
Number.	per Foot.	in Inches.	Circumference	Foot in	Tous of 2000	Tons of 2000	Sheave in
	*		in Inches.	Pounds.	Pounds.	Pounds.	Feet.
	300	$2\frac{3}{4}$	85	11.95	305	61.0	11
	250	$2\frac{1}{2}$	72	9.85	254	50.8	10
° 1	200	$2\frac{1}{4}$	71	8.00	208	41.6	9
2	156	$\overset{\sim}{2}^{\overline{4}}$	$6\frac{1}{4}$	6.30	165	33.0	8
3		13		4.85	128	25,6	71
-	135		$5\frac{1}{2}$		111	22.2	6^2
4	108	1동	5	4.15			-
5	93	$1\frac{1}{3}$	$4\frac{3}{4}$	3.55	96	19.2	$5\frac{1}{2}$
$5\frac{1}{3}$	77	13	$4\frac{1}{4}$	3.00	82	16.4	5^{1}_{4}
6	63	1 - 1	4	2.45	67	13.4	5
7	52	11	$\overline{3_{2}^{1}}$	2.00	56	11.2	43
8	43	1 ⁸	3	1.58	44	8.80	$4\frac{1}{4}$
9	34	7		1.20	34	6.80	$3\frac{3}{4}$
10	26	8 <u>3</u>	$2\frac{3}{4}$ $2\frac{1}{4}$	0.89	25	5.00	$3\frac{1}{2}$
101	19	5	2*	0.62	18	3.60	3
101	16	_6 ₈	$1\frac{3}{4}$	0.50	14.5	2.90	$2\frac{1}{2}$
$10\frac{3}{4}$	14	16	1.	0.39	11.4	2.28	2
10a	13	7 7 13 8	11	0.30	8.85	1.77	13
105	$12\frac{1}{3}$	1 6	11	0.22	6.55	1.31	1
10c		5	18	0.15	4.50	0.90	7
	$\frac{12\frac{1}{4}}{10^{11}}$	16	7			0.60	7 2 3
10d	12	4	$\frac{3}{4}$	0.10	3.00	0.00	3





PLOUGH-STEEL ROPE.

Composed of 6 Strands and a Hemp

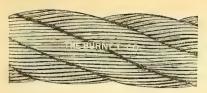
Seven Wires to the Strand.

					Approximate Breaking	Allowable Working	Minimum Size of
Trade	Price in Cents	Diameter	Approximate	Weight per	Strain in	Strain in	Drum or
Number.	per Foot.	in Inches.	Circumference in Inches.	Foot in Pounds.	Tons of 2000 Pounds.	Tons of 2000 Pounds,	Sheave in Feet,
4.4	00	41		3.55	91	18.2	81
11	90	$1\frac{1}{2}$	$\frac{4^{3}}{4}$				$8^{\frac{5}{2}}$
12	75	1 हैं	$4\frac{1}{4}$	3.00	78	15.6	
13	61	$1\frac{1}{4}$	4	2.45	64	12.8	7.1
14	51	$1\frac{1}{8}$	$\frac{3\frac{1}{2}}{3}$	2.00	53	10.6	$6\frac{1}{4}$
15	41	1°	3້	1.58	42	8.40	$5\frac{1}{2}$
16	32	70	$2\frac{3}{4}$	1.20	32	6.40	5
17	25	3/4	$2\frac{1}{4}$	0.89	24	4.80	4
18	20	11	$2\frac{1}{8}$	0.75	21	4.20	$\frac{3\frac{1}{2}}{3}$
19	17	1 <u>5</u>	2	0.62	17	3.40	
20	14	9	$1\frac{3}{4}$	0.50	14	2.80	$2\frac{3}{4}$
21	11	13	$1\frac{1}{2}$	0.39	11	2.20	$2\frac{1}{2}$
22	8	7 7 6	$1\frac{1}{4}$	0.30	8.55	1.71	2
23	$6\frac{1}{2}$	3	$1\frac{1}{8}$	0.22	6.35	1.27	13
24	6	15 15	1	0.15	4.35	0.87	$1\frac{7}{4}$
25	$5\frac{1}{2}$.	111 (100 o) to -422 7 to 0) (10 to 1) to 1) 21	78	0.125	3.65	0.73	1

Note.—When the Rope named above is Galvanized or Tinned, add 10 per cent, to list price per foot. When made with WIRE CENTER, add 10 per cent, to list price per foot.

WIRE CENTER, add 10 per cent. to list price per foot.

Plough-Steel Wire is made from a high grade of crucible cast-steel, and will stand a strain of from 95 to 175 tons per square inch, according to the variety of steel used, the size of wire and the method of manufacturing and improving the wire. Plough-Steel Ropes are used instead of cast-steel or iron where it is necessary to reduce the dead weight, as, for instance, with heavy or extremely long ropes, when the weight of the rope itself becomes a large item. They are also frequently employed when the load on the rope of an existing plant has been materially increased and the sheaves and drums cannot be altered to meet the new requirements. In this case the same size of rope, but made of plough steel, can be used with an increase in strength of 50 to 100 per cent. Plough-Steel Rope derives its name from the purpose for which it was originally intended—the p oughing of fields, an engine moving the rope to which the plough was attached. The ordinary iron and steel ropes were so quickly cut to pieces by stones and grit that something stronger and harder had to be obtained. Plough-steel is, therefore, applicable to conditions involving great wear and rough usage. It is advisable to reduce all bends to a minimum and to use somewhat larger drums and sheaves than are suitable for the ordinary cast-steel rope, having a strength of 60 to 80 tous per square inch.





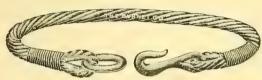
GALVANIZED IRON AND CAST-STEEL RUNNING ROPE.

Composed of 6 Strands and a Hemp Centre, each Strand consisting of 12 Wires and a Hemp Core.

Fig. 556.

Price in Cents per Foot.		Appr ximate Diameter in	Circumfer-	Weight per	Strain in Tons of		
Iron.	Cast-steel.	Inches,	ence in Inches.	Foot in Pounds.	Iron.	Pounds, Cast-steel,	
22	30	$1_{\frac{1}{16}}$	$3\frac{1}{4}$	1.14	12.0	24.0	
20	27	1	3	0.97	10.7	$\frac{21.5}{21.5}$	
17	23	$\frac{7}{8}$	$2\frac{3}{4}$	0.81	8.21	16.4	
$14\frac{1}{2}$	19	13	21	0.67	7.20	14.4	
$11\frac{1}{2}$	15	3 4	$2\frac{7}{4}$	0.54	6.13	13.3	
9	12	5 8	2	0.43	4.29	8.58	
8	10	1 g	$1\frac{3}{4}$	0.33	3.47	6.94	
7	9	$\frac{1}{2}$	$1\frac{1}{2}$	0.24	2.78	5.56	
$6\frac{1}{2}$	85	1 ⁷ 5	$1\frac{1}{4}$	0.17	2.15	4.30	
6	77	. <u>3</u> 8	$1_{ m g}^{ m 1}$				
$5\frac{1}{2}$	7	16	1	0.11	1.14	2.28	

Galvanizd Flexible Running Ropes are similar in construction to Galvanized Hawsers. They are composed of six strands inclosing a hemp core, each strand being made of twelve wires and a hemp centre. They are quite as flexible as manila running rope; much stronger and more durable.



BIRT, TERE

ROPES AND WRECKING ROPES.

Hook and thimble in one end; thimble and link in other end.

Fig. 557.

PRICE, EACH.

Length in		DIAMETER IN INCHES.						
Feet.	1 1/4	$1\frac{1}{8}$	1	7	$\frac{3}{4}$			
20	\$24.00	\$20.00	\$16.50	\$14.00	\$11.50			
25	26.25	22.00	18.00	15.15	12.40			
30	28.50	24.00	19.50	16.30	13.30			
35	30.75	26.00	21.00	17.45	14.20			
40	33.00	28.00	22.50	18.60	15.10			
45	35.25	30.00	24.00	19.75	16.00			
50	37.50	32.00	25.50	20.90	16.90			

Hook thimble and link in one end; thimble and two links in other end.

PRICE, EACH.

20	\$27.00	\$22.50	Φ.	18,50			\$15.75		0	13.00
									Ψ	
25	29.25	24.50		20.00			16.90			13.90
30	31.50	26.50		21.50			18.05			14.80
35	33.75	28.50		23 00			19.20			15.70
40	36.00	30.50		24.50			20.35			16.60
45	38.25	32.50		26.00			21.50			17.50
50	40.50	34.50		27.50			22.65			18.40
Diameter of r	ope in inches .						11	11	1	7
			•	•	,	,	F 0	46	9.4	$2\ddot{6}$
Breaking strai	n in tons of 2000 lbs.						50	42	-34	20

LIST FOR LABOR OF SPLICING ROPE TO MIAKE ENDLESS.

Diameter of Rope in Inches	List for Splicing.	D ameter of Rope in Inches.	List for Splicing.
$1\frac{1}{2}$ to $1\frac{1}{4}$	\$4.00	7 to 3 8	\$2.50
1½ to 7/8	3.50 3.00	$\frac{5}{16}$ to $\frac{1}{4}$	2.00

The charge named to be in addition to the charge made for rope used in making the splice. The prices named to apply only on wire ropes spliced at the works of the manufacturer. Special charge will be made for splicing done elsewhere, such charge depending on the circumstances of each individual case.





CALVANIZED STEEL HAWSERS.

Composed of 6 Strands and a Hemp Centre, each Strand Consisting of 12 Wires and a Hemp Core.

Fig. 558.

Price in Cents per Foot,	Approximate Diameter in Inches	Circumference in Inches.	Weight per Foot in Pounds.	Approximate Breaking Strain in Tons of 2000 Pounds.	Circumference in Inches of New Manila Hawser of Equal Strength.
85	13	$5\frac{1}{3}$	3.25	61.	131
72	1 1 1	$5^{\mathring{1}}_{4}$	2.95	57.	13
62	15	5	2.70	53.	121
56	1 }	$4\frac{3}{4}$	2.42	45.	12
50	$1^{\tau_q}_{rs}$	$4\frac{1}{3}$	2.18	42.	$11\frac{1}{3}$
45	1\frac{3}{8}	$4\frac{\tilde{1}}{4}$	1.94	39.	11
40	$1\frac{7}{4}$	4	1.72	32.	10
36	1 3.	$3\frac{3}{4}$	1.51	29.	$9\frac{1}{4}$
33	$1\frac{1}{8}$	$3\frac{7}{4}$	1.32	27.	$8\frac{3}{4}$
30	1 1 6	$3\frac{1}{4}$	1.14	24.	$9\frac{1}{4}$ $8^{\frac{3}{3}}$ $8^{\frac{1}{2}}$
27	1	3	0.97	21.5	8"
23	$\frac{7}{8}$	$\frac{23}{4}$	0.81	16.4	$6\frac{1}{2}$
19	1 3	21	0.67	14.4	6
15	34	$2\frac{1}{4}$	0.54	12.3	$5\frac{1}{2}$





CALVANIZED STEEL HAWSERS.

Composed of 6 Strands and a Hemp Centre, 37 Wires to the Strand.

Fig. 559.

Pri^e in Cents per Foot.	Approximate Diameter in Inches.	Circumference in Iuches.	Weight per Foot in Pounds.		king Strain in Tot: Pounds.
			an rounds,	Cast-Steel.	Special.
	2	$6\frac{1}{4}$	6.25	128	166
	$1\frac{3}{4}$	5_{2}^{1}	4.85	101	131
	15	5	4.00	84	109
	1 ½	$4\frac{3}{4}$	3.60	76	99
	$1\frac{3}{8}$	$4\frac{1}{4}$	2.90	62	81
	$1\frac{1}{4}$	4	2.55	55	72
	$1\frac{1}{8}$	$3\frac{1}{2}$	1.95	42	55
	1	3	1.44	31	40

Prices on application. These Hawsers combine great strength with pliability.

CALVANIZED STEEL WIRE STRAND.

For Smokestack Guys, Signal Strand, Trolley Line, Span Wire and Other Purposes. Composed of 7 Wires Twisted Together.



		Fig. 5	30.					
Diameter, inches 1	7 7 6	38	75 76	$\frac{1}{4}$	3 16	_5 <u></u>	18	_3 3 2
Weight per 100 ft. pounds 52 Approximate Breaking	40	30	22	13	8	5	$3^{\frac{5}{7}}$	$2\frac{1}{4}$
Strain in pounds . 8320 Price in cents per 100	6000	4700	3300	1750	1000	700	375	320
feet 315	250	200	160	115	80	60	45	35

WIRE ROPE FASTENINGS.

Made of the Best Forged Wrought Iron.					
Fig. 561.		CLOSE	D SOCKETS.		Fig. 561.
Diam. Rope in	Circum, of Rope in	For Cast-Stee	el Rope	For Iron Rop	e.
Inches.	Inches.	Loose.	Fastened.	Loose.	Fastened.
$2\frac{1}{4}$	7 <u>1</u>	\$19.00	\$22.00	\$15.00	\$18.00
2	$6\frac{1}{4}$	17.00	19.75	12.00	14.75 12.25
1 ¼ 1 5	03 5	$14.50 \\ 12.00$	$16.75 \\ 14.00$	$\frac{10.00}{8.00}$	10.00
$\hat{1}^{\frac{8}{1}}$	7 6 4 5 5 4 4 4 4 4	10.00	12.00	6.00	8.00
$1\frac{3}{8}$	41	8.00	9.75	4.75	6.50
$egin{array}{c} 2^{rac{1}{4}} \ 2 \ 1^{rac{3}{4}} = 1^{rac{3}{4}} = 1^{rac{3}{12}} = 1^{rac{1}{2}} = 1^{rac{3}{12}} = 1^{rac{1}{4}} =$	4 55 5 5 4 4 4 5 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.00	7.75	3.75	5.50
18	$\frac{3\frac{1}{2}}{2}$	4.50	$\frac{6.00}{5.00}$	$\frac{3.00}{2.75}$	4.50 4.00
1 2	o 9 <u>\$</u>	$\frac{3.75}{3.00}$	4.25	2.50	3.75
8 3	$2\frac{1}{2}$	2.50	3.75	2.00	3.25
4 5 1	2	2.00	3.00	1.50	2.50
16	$1\frac{3}{4}$	2.00	3.00	1.50	2.50
1/2	11/2	1.60	2.50	1.25	$\frac{2.15}{2.15}$
163	14	1.60 1.35	$2.50 \\ 2.10$	1.25 1.10	1.85
8	18	1.35	2.10	1.10	1.85
7 (02.21) 4 (0) 26 , (27 - 1/2) 7, (27 0) (26 , (27 - 1/4) 7, (27 0) (26 , (27 - 1/4) 7)	$\frac{3}{4}$	1.35	2.10	1.10	1.85
			0004570		Fig. 563.
Fig. 562.	北市教师	OPEN	SOCKETS		Ü
$\frac{2\frac{1}{4}}{2}$	$7\frac{1}{8} \\ 6\frac{1}{4} \\ 5\frac{1}{2}$	\$22.00	\$25.00	\$18.00	\$21.00
2	$6\frac{1}{4}$	19.50	22.25	15.00	17.75
11111111111111111111111111111111111111	$\frac{5}{2}$	$17.00 \\ 14.00$	$19.25 \\ 16.00$	$12.50 \\ 10.00$	$14.75 \\ 12.00$
1 8	5 ⁻	11.75	13.75	7.75	9.75
13	$\frac{4\frac{3}{4}}{4\frac{1}{4}}$	9.75	11.50	6.25	8.00
$1\frac{1}{4}$	4	7.50	9.25	5.00	6.75
$1\frac{1}{8}$	$3\frac{1}{2}$	5.50	7.00	4.00	5.50
1	3 2 2 2 2 1 1 1 1 1 1 1 1 1	$rac{4}{3.75}$	$\begin{array}{c} 5.75 \\ 5.00 \end{array}$	$\frac{3.50}{2.75}$	$\frac{4.75}{4.00}$
(coo	24 91	3.25	4.50	2 50	3.75
4 5	$\overset{\sim}{2}^{\overline{4}}$	2.60	3.60	2.00	3.00
9 TE	$1\frac{3}{4}$	2.60	3.60	2.00	3.00
1 1	$1\frac{1}{2}$	2.20	3.10	1.70	2.60 2.60
7 ⁷ 6	14	$\frac{2.20}{1.90}$	$\frac{3}{2.65}$	$\frac{1.70}{1.50}$	$\frac{2.00}{2.25}$
28	1 k 1	1.90	$\overset{z.05}{2.65}$	1.50	2.25
7.(233)4161% 9.10 4631 € [233]Φ.[-2-1]4	3 4	1.90	2.65	1.50	2.25
SWi	VEL HOOK	AND SOCKET.	2 STEMA	Fig.	564.
					#50.00
$2\frac{1}{4}$	$7\frac{1}{6}$	\$2 9 .00	\$32.00	\$23.00	$\$26.00 \\ 21.75$
2	$7\frac{1}{64}$ $5\frac{1}{2}$	25.00	27.75 23.75	$19.00 \\ 16.00$	18.25
$\frac{1\frac{3}{4}}{1\frac{5}{2}}$	0½ 5	$21.50 \\ 17.50$	19.50	13.00	15.00
1 1	5 43	15.00	17.00	10.00	12.00
$1\frac{2}{3}$	41	12.50	$17.00 \\ 14.25 \\ 12.25$	8.50 7.25 6.25 5.75	10.25 9.00 7.75
$1\frac{3}{4}$	4	10.00	12.25	7.25 e oz	9.00
18	$\frac{31}{2}$	8.50	10.00 8.75	5.75	7.00
1 7	3 93	$7.50 \\ 6.50$	7.75	5.25	7.00 6.50 5.75
83	$\frac{\tilde{2}}{2}$	5.50	6.75	5.25 4.50	5.75
4 5	$\tilde{2}^4$	4.50	5.50	3,75	4.75 4.75
9 76	$1\frac{3}{4}$	4.50	5.50	3.75 2.25	4.75
- I	$1\frac{1}{2}$	3.60	$4.50 \\ 4.50$	3.25 3.25	4.15
17/6	1± 11	3.60 3.00	3.75	2.80	4.15 3.55
9 5_	1 g	3.00	3.75	2.80	3.55
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	43.44.4.4.2.3.3.2.2.2.2.2.1.1.1.1.1.1.1.1.1.1.1.1	3.00	3.75	2.80	3.5 5
4	*		163		

YORK.

COMPANY, NEW

ET

BURN

ш T



HOOK AND SOCKET.

Fig. 565.

Diam. of	Circum.	For Cast-	Steel Rope ·	For I	ron Rope.
Diam. of Rope in Inches. 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Circum. of Rope in Inches. $\frac{4\frac{3}{4}}{4\frac{1}{4}}$ $\frac{4\frac{1}{4}}{4}$ $\frac{4}{3\frac{1}{2}}$ $\frac{2\frac{3}{4}}{2\frac{1}{4}}$ $\frac{2\frac{3}{4}}{1\frac{3}{4}}$ $\frac{1\frac{3}{4}}{1\frac{1}{4}}$ $\frac{1\frac{3}{4}}{1$	For Cast- Loose. \$14.00 11.50 9.50 7.50 6.50 5.50 4.50 3.50 2.75 2.75 2.25 2.25 2.25	Fastened. \$16.00 13.25 11.25 9.00 7.75 6.75 5.75 4.50 4.50 3.65 3.00 3.00 3.00	\$9.00 7.50 6.25 5.25 4.75 4.25 3.50 2.75 2.75 2.40 2.40 2.00 2.00 2.00	Fastened. \$11.00 9.25 8.00 6.75 6.00 5.50 4.75 3.75 3.75 3.75 3.75 2.75 2.75
-12	-				



SISTER HOOKS AND THIMBLE.

Fig. 566.

	410.00	#10.00	\$7.50	\$9.50
$4\frac{3}{4}$	\$10.00	\$12.00		
11	8.75	10.50	6.75	8.50
1	8.00	9.75	6.00	7.75
91	6.75	8.25	5.25	6.75
$egin{array}{c} 4^{rac{1}{4}} \\ 4 \\ 3^{rac{1}{2}} \\ 3^{-} \end{array}$	5.75	7.00	4.50	5.75
93	5.00	6.25	3.85	5.10
$2\frac{3}{4}$ $2\frac{1}{4}$ 2	4.15	5.40	3.25	4.50
$\tilde{2}^4$	3.30	4.30	2.75	3.75
$\tilde{1}\frac{3}{4}$	3.30	4.30	2.75	3.75
11	2.50	3.40	2.30	3.20
$1\frac{1}{2}$ $1\frac{1}{4}$ $1\frac{1}{8}$	2.50	3.40	2.30	3.20
11	2.20	2.95	1.90	2.65
18	2.20	2.95	1.90	2.65
3_4	2.20	2.95	1.90	2.65

HOOK AND THIMBLE.

Fig. 567.

			at ag	g. 001.	
1	43	\$10.00	\$12.00	\$7.50	\$9.50
3	41	8.75	10.50	6.75	8.50
<u>ş</u>	$\overline{4}^4$	8.00	9.75	6.00	7.75
1 8	$\bar{3}_{\frac{1}{2}}$	6.75	8.25	5.25	6.75
8	32	5.75	7.00	4.50	5.75
7		5.00	6.25	3.85	5.10
33	21	4.15	5.40	3.25	4.50
<u>4</u>	$2rac{2}{4}$ $2rac{1}{4}$ 2	3,30	4.30	2.75	3.75
7 000 45 309 5	13	3.30	4.30	2.75	3,75
16	11	2.50	3.40	2.30	3.20
7_	1 1	2.50	3.40	2.30	3.20
3	1 1 1 1 1	2.20	2.95	1.90	2.65
- 53 85 6 1 6	18	2.20	2.95	1.90	2.65
16	3	2.20	2.95	1.90	2.65

STEEL WIRE ROPE THIMBLES .- GALVANIZED.



rica. Amalian

Width of Score, $\frac{1}{4}$	5	3	7 6	1 9	.5	$\frac{3}{4}$	7/8
Circumference of Rope, 3	7	ĭ	1 4	$1^{rac{7}{3}}$	Ž	23	$2\frac{5}{4}$
Price per Dozen, . \$1.10	1.15	1.20	1.30	1.40	1.60	1.75	2.00
Width of Score, . 1	11	$1\frac{1}{4}$	1용	$1\frac{1}{2}$	15	13	2
Circumference of Rope, 3	31/2	$3\frac{3}{4}$	4	45	5	$5\frac{1}{2}$	6
Price per Dozen, . \$2.25	2.50	3.25	4.00	4.50	5.50	6.50	9.00

OPEN (ROUND) THIMBLES.





THIMBLE SPLICED ON ROPE.

Fig. 569.

COMPANY, NEW YOR

0	
Diameter of Rope in Inches.	Circumference of Rope in Inches.
1 ½ 1 ½	434

Circumierence of	-F
Rope in Inches.	_
$4\frac{3}{4}$	
4 4 3 8 8 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
4	
$3\frac{1}{5}$	
3~	
$2\frac{3}{4}$	
$2\frac{1}{4}$	
2^{-}	
$1\frac{3}{4}$	
15	
$1\frac{1}{4}$	
13	

'or Cast Steel	For Iron Rope.
Rope.	*
\$6.00	\$4.50
5.25	4.00
4.50	3.50
3.75	3.00
3.00	2.50
2.50	2.10
2.15	1.75
1.80	,1.50
1.80	1.50
1.60	1.35
1.60	1.35
1.40	1.15
1.40	1.15
1.40	1.15

Fig. 571.

Diameter of Rope in Inches.	Circumference of Rope in Inches.	Price in Cents.	
1 1	$4\frac{3}{1}$	60	
1 <u>1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</u>	$4\frac{1}{4}$	55	
1 4	4	50	
$1\frac{1}{8}$	3 <u>1</u> 3	50	
1	3	50	
7/8	2^{3}_{4}	45	

THE "JUPITER" WIRE ROPE CLIP.

COMPACT, INEXPENSIVE, SIMPLE.

The "Jupiter" Clip is practically in one piece. It is applied by simply loosening the nut, swinging back the bolt, putting rope to be secured into score, and then swinging the bolt forward to its former position and tightening the nut.

Diameter of Rope in Inches.	Circumference of Rope in Inches.	Price in Cents,
3 4 5	$\frac{2\frac{1}{4}}{2}$	$\frac{40}{35}$
10 ∞ ∞ ∞ ∞ ∞ ∞ ∞	1 ½ 1 ½	30 25
8 16 14	1 3	25 25

Fig. 572.

Diameter of Rope in Inches.	Circumference of Rope in Inches.	Price in Cents.
21	$7\frac{7}{8}$	600
2 1	7 1	500
2 *	$6\frac{7}{4}$	400
13	$5\frac{1}{3}$	350
11	43	60
1 3	41	55
1 1	4	50
1 .	$3\frac{1}{2}$	50

THE "CROSBY" DROP FORCED WIRE ROPE CLIP.

LIGHT, DURABLE AND CONVENIENT.

Can't be broken. The safest clip on the market.

Die forged of 60,000-pound T. S. steel. Will stand hammering, bending and frost. You can't make them slip or break.

Diameter of Rope in Inches.	Circumference of Rope in Inches.	Price in Cents.
1	3	50
7/2	$2\frac{2}{4}$ $2\frac{1}{4}$ 2	45
3	$2\frac{\mathrm{i}}{4}$	40
5 .	2	35
<u> j</u>	$1\frac{1}{2}$	30 2 5
38	$1^{\frac{1}{8}}$	25
5 1 K	1	25 25
는 VSC() 학교(20 = 10 10 10 10 10 10 10 10 10 10 10 10 10	$\frac{3}{4}$	25

PATENT WIRE ROPE CLAMP.

Made with either two or three Bolts.

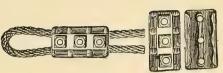
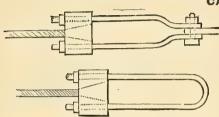


Fig 573.

Price in Cents	Diam, of Rope in In,	Circum of Rope in In.	Price in Cents.	Diam, of Rope in In, F	Circum of tope in In.
800	$2\frac{1}{4}$	$7\frac{1}{8}$	60	1	3
500	$2^{}$	$6\frac{7}{4}$	50	78	$2\frac{3}{4}$
400	$1\frac{3}{4}$	$5\frac{1}{2}$	45	13	$2\frac{1}{2}$
300	$\frac{1_{4}^{3}}{1_{8}^{5}}$	5	40	3 483H	$2\frac{1}{4}$
150	$1^{\frac{7}{16}}$	$4\frac{1}{2}$	35		2
110	$1\frac{1}{4}$	4	33	79 70	$1\frac{3}{4}$
90	1_{18}^{8}	$3\frac{3}{4}$	30	<u>1</u>	1 &
75	$1\frac{1}{8}$	$3\frac{1}{2}$	28	7	$1\frac{1}{4}$
65	$1\frac{1}{16}$	$3\frac{1}{4}$	25	16	1

SUPENSION BRIDGE AND CABLE-WAY SOCKETS.



SOCKET WITH TURN BUCKLE.

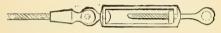


Fig. 576.

Prices according to size and weight.

Fig. 574.

CLOSED SOCKET.

Prices on application.

Fig. 575.

OPEN SOCKET.

Prices on application.

SOCKET WITH CHAIN.

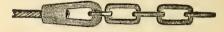
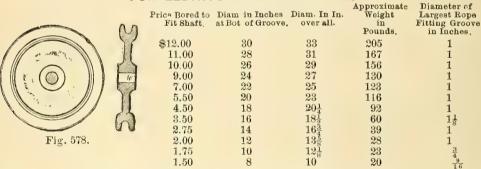


Fig. 577.

Prices according to size and length of chain.

SOLID IRON SHEAVES. FOR ELEVATORS AND DERRICKS.



In ordering always state diameter of sheave at bottom of groove.

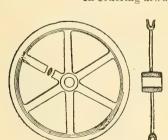
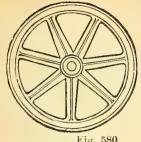


Fig. 579.

LIGHT IRON HOISTING SHEAVES.

	(370)	(E SHEA	V E.	
Price Bored to FitShaft.	Diam, in Inches at Bot, of Groove,		Approximate Weight in Pounds.	Diameter of Largest Rope Fitting Groove in Inches.
\$6.00	30	33	90	1
4.00	24	27	56	1
3.00	18	20 ł	31	7
2.50	16	18	22	11
2.25	14	16	23	3/4
1.75	12	$13\frac{3}{4}$	17	11

In ordering always state diameter of sheaves at bottom of groove.





HEAVY IRON HOISTING SHEAVES.

Price, Bored to Fit Shaft.	Diameter in Fe. t at Bottom of Groove.	Diameter in Feet and Inches over all,	Approxi- mate Weight in Pounds.	Diameter of Largest Rope Fitting Groove in Inches.
\$75.00	6	$6-7\frac{1}{2}$	1278	$1\frac{3}{4}$
45.00	5	5 7	886	1 ½
35.00	4	$4 5\frac{1}{2}$	622	$1\frac{1}{4}$
22.00	3.	$3 - 5\frac{1}{4}$	414	1

Fig. 580.



WITH WOOD-LINED GROOVES. 6 $6 - 7\frac{3}{4}$ 1300 5 $5 - 5\frac{1}{4}$ 975

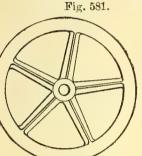
 $\frac{1\frac{3}{4}}{1\frac{1}{2}}$

	60.00	4	4 6	700	$1\frac{1}{4}$	
	45.00	3	$3-6\frac{1}{4}$	470	1	
	Special prices	on both of	the above classe	s of Heavy l	fron Sheaves o	Í
1	arger diameters.	with cast or	r wrought-iron as	rms,		

Diameter in

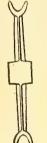
LICHT-ARM SUPPORTING SHEAVES.

With Wide Grooves.



ш Z 04

0 , Lu I



Price, Bored to Fit Shaft,	Inches at Eottom of Groove.	Diameter in Inches over all.	Approximate Weight in Pounds,
\$11.00	30	35	170
9.00	28	32	147
8.00	26	30	133
6.00	24	$27\frac{1}{2}$	88
5.80	22	$25rac{ar{1}}{2}$	85
4.40	20	23	55
3.60	18	21	46
3.40	16	185	38
2.80	14	$16\frac{1}{4}$	27
2.50	12	14	22
Sheaves als	o fitted with set	screws.	

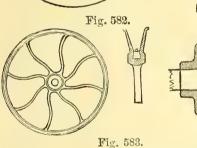
SHEAVES.

For Transmission of Power by Wire Rope.

Price, Bored and Lined.	Diameter in Feet at Bottom of	Diameter in Feet and Inches	Approximate Weight in Pounds
*\$235.00	Groove. 12	over all. 12 8	3440
*220.00	11	11 - 9	3000
*150.00	10	10 - 8	2400
120.00	9	9-8	1800
95.00	8	8-8	1390
72.00	7	7—8	975
59.00	6	$6-6\frac{3}{4}$	800
37.00	5	5 - 5	450
24.00	4	$4 - 5\frac{1}{4}$	275
15.00	3	33	161
10.50	$2\frac{1}{2}$	2 8	95
7.50	2	2 2	66
5.50	$1\frac{1}{2}$	1 8	46
* Cast in ha	lves- all others	solid unless spe	a ified. Prices

for larger sheaves on application.

PATENT



Sheaves bored to fit shaft. Grooves filled with patent rubber and leather lining.

In ordering always state diameter of sheave at bottom of groove.







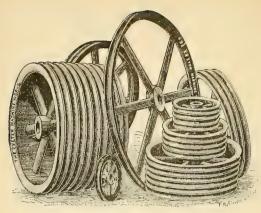
LEATHER LINING FOR SHEAVES.

RUBBER

AND

For Transmission of Power by Wire Rope.

Price per set of filling for different sizes of sheaves furnished on application. Cuts show reduced sections.



MANILA ROPE TRANSMISSION.

IRON SHEAVE WHEELS FOR ROPE DRIVE.

We are prepared to furnish wheels from 24 inches up to 20 feet diameter, grooved for rope from $\frac{3}{4}$ inch up to $3\frac{1}{4}$ inches diameter.

PRICES QUOTED ON SPECIFICATIONS.

Fig. 585.

SOLID IRON SHEAVES, FOR ELEVATORS, DERRICKS, ETC.

Made from 2 to 38 inches diameter. Taking rope \(\frac{1}{2} \) to 2\(\frac{1}{2} \) inches diameter.

DOUBLE GROOVED SHEAVES.

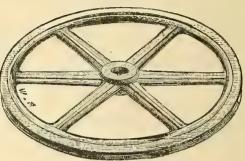


Fig. 586.

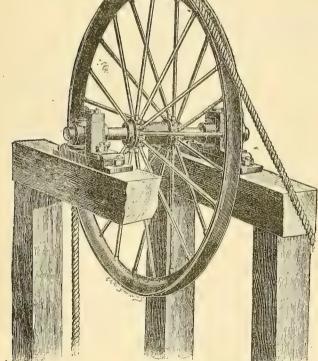


Fig. 587.

WROUGHT SPOKE SHEAVE.

FOR SHAFT AND SLOPE HEAD FRAMES.

Male from 6 feet to 14 feet diameter.

PRICES QUOTED ON APPLICATION.

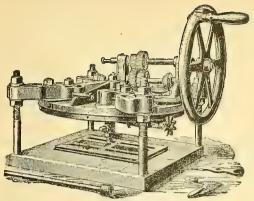


Fig. 588.

PORTABLE VALVE SEAT ROTARY PLANING MACHINE.

Size.	Weight.	Price.			
18-inch	2 1 0 lbs. net	\$225.00			
22 "	235 "	240.00			
26 "	350 "	260.00			

CYLINDER BORING BAR.

This Boring Bar is intended for boring locomotive cylinders before or after they are placed in position, and only needs a trial to be appreciated.

Price \$285.00

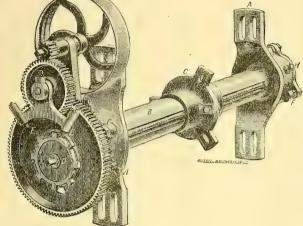


Fig. 589.

IMPROVED PORTABLE LOCOMOTIVE CYLINDER BORING BAR AND FIXTURES.



Fig. 590.

This Portable Boring Bar and Fixtures is designed to bore out Locomotive Cylinders in place. The fixtures that go with the Bar allow cylinders to be bored where it is not desirable to take off the cylinder and guides.

$2\frac{1}{2}$	Inch	Bar			Weight,	Boxed	487 lbs.			٠	Price,	\$290.00
3	4.4	s 6			66	6 6	709 "	٠			4.6	
$3\frac{1}{4}$	64	66	۰		66	66	938 "				4.6	360.00

PATENT PLAIN BACK EXTRA RAILROAD SHOVELS.

Extra Heavy, Solid Crucible Cast steel, Socket Strap Shovels and Spades,
Especially Adapted for Mining and Railroad Purposes.



Fig. 591.

D OR LONG HANDLES. SQUARE OR ROUND POINTS.

-	01		=1	т	u	S.	
-	57. I	г.	_		п	O.	

Size number		2	3	4	5	6
Black, per dozen		\$18.50	\$19.00	\$19.50	\$20.00	\$20.50

PATENT SOCKET STRAPS, SOLID CAST-STEEL SHOVELS AND SPADES.

DOUGLAS. C. H. BARTLETT. DENIN.

Size number		2	3	4	. 5	6
Black, per dozen		\$17.00	\$17.50	\$18.00	\$18.50	\$19.00

PATENT PLAIN BACK.

PATENT SOCKET STRAPS, SOLID CAST-STEEL SHOVELS AND SPADES.

SAXTON. BOARDMAN. BAXTER.

Size number . . . 2 3 4 5 6 7 8 Black, per dozen . \$15.50 \$16.00 \$16.50 \$17.00 \$17.50 \$18.00 \$18.50

WEBSTER. ROWLAND. WEBBER.

PLAIN BACK CAST-STEEL RAILROAD SHOVELS AND SPADES.

D OR LONG HANDLES. SQUARE OR ROUND POINTS.



Fig. 592.

PFEIFER. SCRANTON.

Size number .		2	3	4	5	6
Black, per dozen .	٠	\$17.00	\$17.50	\$18.00	\$18.50	\$19,00

KING. NILEB.

Size number . Black, per dozen	$\frac{2}{$1550}$	3 \$16.00	$\begin{smallmatrix} 4\\\$16\ 50\end{smallmatrix}$	5 \$17.00	$\frac{6}{$17.50}$	7 \$18.00	8 \$18 50

JOHNSON. NICHOLS. ROWLAND.

Size number		2	3	4	5	6
Black, per dozen		\$14.00	\$14.50	\$15.00	\$15.50	\$16.00

DYE. EMPIRE. XXX.

Size number		2	3	4	5	6
Black, per dozen		\$13.00	\$13.50	\$14.00	\$14.50	\$15.00

For polished add 50 cents per dozen to above lists.

RAILROAD PATENT PLAIN BACK SOLID CAST-STEEL SHOVELS AND SPADES.

EXTRA WIDE STRAPS.

D OR LONG HANDLES. SQUARE OR ROUND POINTS.

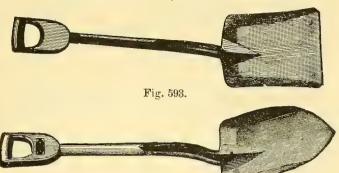


Fig. 594.

						GRIFFI'	THS.						
Size number					2	3	4	5	6	7	8		
Black, per dozen					\$18.50	\$19.00	\$19.59	\$20.00	\$20.50	\$21.00	\$21.50		
DANFORTH.													
Size number	٠		٠							2	3		
Black, per dozen		٠.		٠						\$17.00	\$17.50		
						JACKS	ON.						
Size number					2	3	4	5	6	7	8		
Black, per dozen					\$15.50	\$16.00	\$16.50	\$17.00	\$17.50	\$18.00	\$18.50		
						HARL	AN.				,		
Size number					2	3	4	5	6	7	8		
Black, per dozen					\$14.00	\$14.50	\$15.00	\$15.50	\$16.00	\$16.50	\$17.00		
						PENI	N.						
Size number					2	3	4	5	6	7	8		
Black, per dozen					\$13.00	\$13 50	\$14.00	\$14.50	\$15.00	\$15.50	\$16.00		
_		Fo	rр	oli	shed, add	50 cents p	er dozen	to above 1	ists.				

PATENT NARROW MOUTH LOCOMOTIVE AND NO. O NARROW CAUCE FURNACE SCOOP.

PLAIN BLACK, CRUCIBLE CAST-STEEL.

ととつの



Fig. 595.

Size number		0 and 2	3	4	5	6	7	8
Black, per dozen		\$19.00	\$19.70	\$20.40	\$21.10	\$21.80	\$22.50	\$23.20

PITTSBURG SOCKET OR HOLLOW BACK COAL AND LOCOMOTIVE SCOOP.

Size number			3	4	5			
Black, per dozen		\$18.00	\$18.70	\$19.40	\$20.10	\$20.80	\$21.50	\$22.20

BACK STRAP EXTRA CAST-STEEL LOCOMOTIVE SCOOPS.

Size number									
Polished, per dozen		\$20.50	\$21.00	\$21.50	\$22.00	\$22.50	\$23.00	\$23.50	\$24.50
	Fin	ichad in	Black 5	O centa	er dozei	less			

PLAIN BACK, EXTRA SOLID STEEL SHOVELS AND SPADES.

PLAIN OR SOCKET STRAPS

Fig. 596.



PENNSYLVANIA.	EXTRA :	SOLID	STEEL.
---------------	---------	-------	--------

	L THE STEAM				
Size number	2	3	4	5	6
		_	#90 00	-	
Black, per dozen	\$35 50	\$36.75	\$38.00	\$39.25	\$40.50
	OLIV	ER. SOLID	STEEL.		
Size number	2	3	4	5	6
		\$35 25	\$36.50	\$37.75	\$39.00
Black, per dozen	\$34.00	ಥಾರ ಸರ	Фэ0. э0	Φ91.19	φου.00
	NEWT	ON, SOLID	STEEL.		
Size number	2	3	4	5	6
	\$1.00	\$32.25	\$33,50	\$34.75	\$36.00
Black, per dozen	Φ)1.00	ψυλ. λυ	Φυυ.υ	Ψυτ.1υ	ψ90.00
	GRE	Y. SOLID	STEEL,		
Size number	2	3	4	5	6
Black, per dozen	\$29.00	\$30.25	\$ 31.50	\$32.75	\$34 00
Diack, per dozen	Ψωυ.00	₩₩₩.₩₩	Ψοι.σο	Ψον. 10	Φ0± 00
BOLABILLA	TTAN COL	D OTCEL	DI AIN CTDA	DC ONLY	
MANHA		ID STEEL.	PLAIN STRA		
Size number	2	3	4	5	6
Black, per dozen	\$27.50	\$28.75	\$30.00	\$31.25	\$32,50
Diack, per dozen					
Diack, per dozen	$\psi \sim i$.00	Ψ20.10	ψου.υυ	ψ01.20	Ψυλ.υυ
					Ψ02.00
"E	K." SOLID S	TEEL. PLA	IN STRAPS	ONLY.	ψολ.ου
	K." SOLID S				6 \$31.00

JURNE I CUMPART, NEW TORK.

Black, per dozen \$26.00 \$27.25 \$28.50 In above lists round point sizes are Nos. 2, 3 and 4.

For polished shovels and spades add to above lists \$1.25 per dozen.

PATENT PLAIN BACK, SOLID CRUCIBLE CAST-STEEL SHOVELS AND SPADES.

SQUARE AND ROUND POINT.



Fig. 598.

61. 3	0	_				
Size number	2	3	4	5	6	7
Black, per dozen	\$37.00	\$38.50	\$40.00	¢ (1.50	\$43.00	0.4.1.50
D.a. B. per dozen	φοι.00	φυσ.υσ	φ±0.00	ΦŦT 90	Ф#9.00	\$44.0U



OLIVER AMES
& SONS'
CORPORATION
SHOVELS.
PLAIN BACK D HANDLE,
SOUARE POINT.

O. AMES.

CAST-STEEL EDGE, PLATED.

The Blade and Straps are Swede Steel, with Crucible Cast-steel Edge.

Number	21	22	23	24	25	26	27	28	29	30	31	32
Size	1	2	3	4	5	6	7	8	9	10	11	12
Black.	1 244 22	40.00	40 80	40.00	44.00	40.00						

Black, per doz., \$\\$11.75 \ 12.00 \ 12.50 \ 13.00 \ 14.00 \ 15.00 \ 16.00 \ 17.00 \ 18.00 \ 19.50 \ 20.50 \ 22.50 \ Polished, per doz., . No. 21, Size 1, \$\\$12.50. No. 22, Size 2, \$\\$12.75. No. 23, Size 3, \$\\$13.25

T. M. PORTER. PLAIN BACK, STEEL-EDGE PLATED, SQUARE POINT.

Number .	113	114	115	116	117	118	119
Size	2	3	4	5	6	7	8
Black, per dozeu,	\$10.50 \$11.50	$\frac{11.25}{12.00}$	12.00	12.50	13.00	13.50	14.00



PATENT
PLAIN BLACK
SOLID
CAST-STEEL
SHOVELS.
SOUARE POINT.

No.	236,	Size	2.	O. AMES,	Black,			Per dozen,	\$12.75
No.	237,	6.6	3.	4.6	5.6			6.6	13.50
No.	228,	4.6	2.	6.6	Polished,			4.6	13.50
No.	228.	46	3.	6.6	6.6			4.6	14.00
No.	314,	6.6	2.	R. C. BLAI	R, "			4.6	10.75
	315.	6.4		66 66	6.6			6.6	11.25
No.	329.	6.6	2.	CARTER,	s 6			6.6	10.50
No.		"	3.	64	4.6			4.6	11.00

R. C. BLAIR and CARTER Black Shovels, 25 cents less per dozen, net.

PATENT PLAIN BACK SOLID STEEL SHOVELS. SQUARE POINT.

No. 846, Size	2.	A. LEE, Black,					I	Per dozen,	\$9.25
		" Polished,						44	9.75
No. 866, "	2.	W. HADWIN,							9.00
		W. HADWIN Black	Shovels,	25 cents	less	per dozen,	net.		



BACK STRAP CAST-STEEL SHOVELS, SQUARE POINT.

No. 357,	Size	2.	O. AMES, Polished,					Per dozen,	\$12.50
No. 423,	6.6	2.	A. STONE. "			•		6.6	11.00
No. 457,	66	2.	O. A. DAY, "	•				4.4	10.00
No. 491,	4.6	2.	SANDERSON, "		•			66	10.00
No. 492,	4.4	3.	SANDERSON, "					4.6	10.50
No. 548.	4.6	2.	C. H. REED (Steel),					+ 6	9.25
No. 561.	4.6	2.	LINDSAY, "		•			66	9.00

Black Shovels 25 cents net less per dozen, except O. AMES, which is 50 cents list.

Per dozen, \$12.25

OLIVER AMES SONS' CORPORATION SHOVELS. PLAIN BACK D HANDLE. ROUND POINT.

CAST-STEEL EDGE, PLATED.

The blade and shape are Swede Steel, with Crucible Cast-steel Edge.



		2.	

No 29 Size 2 O AMES Black

110. 55. 1012	LE &.	U. ALITHER'S	DIAGN					•	Tor Gorone	
No. 68.	2.	+ 6	Polished						6.6	13.00
No 128 "	2.	T. M. POR	TER. Bla	ek					66	10.50
No. 153 6	. 9	61	Pol.	ished					£ s	11.25
110, 100,	/~ .		201			,	·			
P.	ATER	T PLAIR	BACK	SOLI	D CA	ST-ST	EEL.	ROUI	ND POINT.	
No. 238, S	ize 2.	O. AMES	Black						Per dozen.	\$13.50
No. 230.	· · 2.	4.4	Polished						8.6	14.00
No. 239.	11 3.	6.	Black						64	14.00
No. 231	16 3.	6.6	Polished						4.6	14,50
No. 316	16 9	R C BLA	IR.		•				41	
No. 331,	9	CARTER	46	•	•			•	44	11.00
140. 991,										11.00
	R. (C. BLAIR a	ind CART	EK RI	ick Sho	vels 25	cents fe	ess per d	ozen, net.	
	DA	TENT PL	AIN DA	CK S	OLID	STEE	1 0	OUND	POINT.	
	PA	I EMI PL	MIN DA	OR 3	OLID	3122	B- 876	COMED	POINT.	
No. 848, S	ize 2.	A. LEE, I	3laek						Per dozen.	\$9.50
No. 840,	" 2.	6 1	Polished						6	10.00
No. 868.	" 2.	W. HAD	WIN, Poli	shed					6	9.25

BACK STRAP CAST-STEEL. ROUND POINT.

No. 365, Size 2.	O. AMES, Polished						Per dozen.	\$13.07
No. 431. " 2.	A. STONE						6.4	11.50
No. 465, " 2.	O. A. DAY '' .						• 6	10.50
No. 497, ' 2.	SANDERSON, Polished						66	10.50
No. 498, " 3.	66						46	11.00
No. 551, " 2.	C. H. REED (Steel), Pol	ished					4.6	9.50
No. 564. " 2.	LINDSAY "	4.6					4.6	9.25
Black Sho	ovels 25 cents net less per o	lozen,	except	O. AM	IES, w	hich is	50 cents list.	



Fig. 603.

O. AMES CAST-STEEL. POLISHED.

703 704 705 706 707 709 710 711 712 713 No. 714 715 4 3 5 6 8 9 10 11 12 13 14 Doz. \$14.50 14.75 15.25 15.5016.50 17.00 17.75 18.50 19.00 16.0020.00 21.00 22.00

SANDERSON'S BEST STEEL. POLISHED.

732 736 No. 730 731 733 734 735 737 738 739 740 3 4 5 6 7 9 10 11 12 Per doz. \$12.75 13.00 13.25 13.00 13.50 13.75 14.00 14.5014.50 15.00 15.50

NAYLOR'S STEEL. POLISHED.

No.	741	742	743	744	745	746	747	748	749
Size	2	3	4	5	6	7	8	9	10
Per doz.	\$10.75	11.00	11.25	11.50	11.75	12.00	12.25	12.75	13.00

BACK STRAP EXTRA CAST-STEEL SHOVELS AND SPADES.

. D OR LONG HANDLE. SQUARE OR ROUND POINT.



Fig. 604. Square Point Shovel.



Fig. 605. Round Point Shovel.

BACK-STRAP. EXTRA HEAVY.

CRIFFITHS.	H	ALFM	AN.		STERLING.				
Size number Black, per dozen			.,,	0		0	10	1.~	

BACK STRAP CAST-STEEL.

Black, per dozen \$14.50 15.00 15.50 16.00 16.50 17.00 17.3	3
BALDWIN. PFEIFER. TROJAN. ROWLAND.	
Size number . . 2 3 4 5 6 7 8 Black, per dozen . \$14.00 14.50 15.00 15.50 16.00 16.50 17.0	00
LANE. MOORE. ARROW. THOMAS.	
Size number . . 2 3 4 5 6 8 Black, per dozen . \$13.00 13.50 14.00 14.50 15.00 16.0	00
STONE. FREY. ROYAL. MOON.	
S ze number	

COMPA

113

Z

2

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-

HUSSEY, BINNS & CO. BACK STRAP EXTRA CRUCIBLE CAST-STEEL.

Size number Black, per dozen		2 \$33.75	3 35.25	$\begin{smallmatrix} 4\\36.75\end{smallmatrix}$	5 38.25	6 39.75
		Round Poin	ts, Nos. 2 3 a	and 4.		

THE PITTSBURG SOCKET OR HOLLOW BACK CRUCIBLE CAST-STEEL.

Size number Black, per dozen				_	4 37 00	-	~		
Ditter, per dozen	•	٠	•		Nos 2 and		10:00	11100	20100

THE PITTSBURG SOCKET OR HOLLOW BACK CRUCIBLE CAST-STEEL COAL SHOVEL.

Size number Black, per dozen			1 \$27.75	$\frac{2}{28.75}$	$\begin{array}{c} 3 \\ 29.75 \end{array}$	`4 30.75	5 32.75
		Mos	1 9 and 2 alex	mude with 1	one handle		

HUSSEY, BINNS & CO. PLAIN BACK CRUCIBLE CAST-STEEL COAL SHOVEL.

			- 0			V	J }	of their	٠ ،	→ 2	10	y w	the line	•		
Size number .															2	
Black, per dozen		v									φ			\$27.75	28.75	29.75

EXTRA HEAVY BACK STRAP, SOCKET STRAPS, SHOVELS AND SPADES.

ESPECIALLY ADAPTED FOR MINING AND RAILROAD PURPOSES.

				S.

Size number		2	3	4	5	6
Black, per dozen		\$16.00	\$16.50	\$17.00	\$17.50	\$18.00
-		Wan Dali	03 Lba Ladu	nta non dagen		

BACK STRAP, CAST-STEEL SOCKET STRAP SHOVELS

AND SPADES.

			SAVION.			
Size number Polished, per dozen		9 \$15.00	3 \$15.50 WEBSTER .	\$16.00	\$16.50	\$17.0)

4 5 Size number . \$15.50 \$16 00 Polished, per dozen . . \$13.50 \$14.00 \$14.50 \$15.00

PLAIN BACK SOLID CAST-STEEL MOULDERS



BARTLETT.

DENIN.

PEFIFED

SCRANTON.

DANFORTH.

Si

Po Si

		_	 	 			_					_	_	 					
ize number olished, per dozen																		50	\$19.00
JACKSON.																			
ize number										0								2	5
olished, per doze i							٠				а		٠				\$	16.00	\$17.50
WEBBE	R.				1	RO	W	LA	NI	D.				J¢	ЭН	NS	O	N.	
ize number															٠	٠			2
olished, per dozen															0 -				\$14.50

Patent Dirigo Handles put in all above Moulders' Shovels when so ordered. SOLID CAST-STEEL SOCKET STRAP TAMPING SHOVEL. SIZE NO. 2, BLACK.



Fig. 607. MONONGAHELA per dozen \$17.00 PITTSBURG, per dozen \$19.00 C. H. BARTLETT, 17.00 SAXTON. 17.5066 BOARDMAN, 15,50 WEBSTER, 14.00 GRIFFITHS. DOUGLASS, 20.50 19.00 GORDON. 19.00 WILSON, 15.50

SOLID CAST-STEEL PLAIN STRAP TAMPING SIZE NO. 2, BLACK.



		Fig. 608.						
ROWLAND, rer dozen HUSSEY, BINN & CO., per dozen		\$14.00 20.50	SCRANTON, NILEB	-	dozen	•	•	\$19.00 17.50



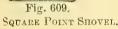




Fig. 610. SQUARE POINT SHOVEL. ROUND POINT SHOVEL.



Fig. 611. SPADE.



Fig. 612. COAL SHOVEL.

15.50

EXTRA CAST-STEEL HOLLOW BACK.

D OR LONG HANDLE, SQUARE OR ROUND POINT.

GEORGE GRIFFITH :. PFEIFER. LACKAWANNA. HOLMES. Size number 2 4 6 Black, per dozen \$16.50 17.00 17.5018.00 18.50 19.50

BEST CAST-STEEL HOLLOW BACK.

D OR LONG HANDLE, SQUARE OR ROUND POINT.

ATLAS. PENN. BAIRD. CORDON. Size number Black, per dozen \$15.00 15.50 16.00 16.50 17.00 18.00

CAST-STEEL HOLLOW BACK.

D OR LONG HANDLE, SQUARE OR ROUND POINT.

WYOMING. PACKER. WILSON. Size number \$13.50 Black, per dozen 14.00 14.50 15.00 15.50

For Polished add 50 cents per dozen to all the above. SOLID STEEL HOLLOW BACK.

D OR LONG HANDLE, SQUARE OR ROUND POINT.

BOSS. DIAMOND. METEOR. SELLERS. Size number \$12.50 13.00 13.50Black, per dozen CAST-STEEL HOLLOW BACK COAL SHOVELS.

Western Pattern, D or Long Handle.

BAIRD. PENN.

Size number \$17.00 17.50 18,00 Black, per dozen For Half Polished add 50 cents per dozen.

SOLID STEEL PATTERN, HOLLOW BACK COAL SHOVELS.

WESTERN PATTERN, D OR LONG HANDLE. SELLERS. BOSS.

Size number 15.00Black, per dozen \$14.50 15.50 For Half Polished add 50 cents per dozen.

HOLLOW-BACK COAL AND COKE SHOVELS. WESTERN PATTERN.



Fig. 613.

CRUCIBLE CAST-STEEL SOCKET COAL SHOVELS.

BLACK. D OR LONG HANDLE.

	LACKAWA	NNA.	G. GRIFF		HOLMES.		
Size, Per dozen,			1 \$18.50	$\begin{array}{c} 2 \\ 19.00 \end{array}$	3 19.5 0	$\begin{array}{c} 5 \\ 20.50 \end{array}$	6 18.50
EXTRA	CAST -	STEEL	. sock	ET CO	AL SH	OVELS.	
			D or Long				
Gi	AT	LAS. I	BAIRD.	GORDOI	N. 3	5	6
Size, Per dozen,			\$17.00	17.50	18.00	19.00	17.00
SOLID	CAST-	STEEL	SOCK	ET CO	AL SHO	VELS.	
			D or Long				
Size,	WYO	MING.	PACKER 1	R. WIL 2	SON.	5	6
Per dozen,	• • •		\$15.50	16.00	16.50	17.50	15.50
SOL	ID STE	EL SC	CKET	COAL	SHOVE	LS.	
			D or Long				
Size,	MOND, S	BELLERS	S. CLEV 1	ELAND	or METE	OR. 5	6
Per dozen, .			\$14.50	15.00	15.50	16.50	14.50
Nos. 1, 2 and 3 on No. 5 of all the				oal Shovel	S		
No. 6 of all the	above are Ar	tbracite (Coal Shovels				
No. 1. Bituminous		ZES AND J	Dimensions			Length, $14\frac{1}{4}$ i	nches.
No. 2. Bituminous No. 3. Bituminous				6.6	$14\frac{1}{4}$ " $14\frac{3}{4}$ "	$14\frac{3}{4}$ $15\frac{3}{8}$	4 .
No. 5. Coke,				. "	15 "	" 17	"
No. 6. Authracite,	N		racite is R	ound Poin	ıt.	" 14	••
Dimensions	For Half s of Blades		BACK D. I			APE POINT	
Size No	. 2	3	4	5	6	7	8
Width, Inches, Length, Inches,	$9_{\frac{7}{4}}^{\frac{3}{4}}$	$\frac{10\frac{1}{5}}{12\frac{3}{8}}$	$\frac{10^{3}_{4}}{12^{\frac{7}{8}}}$	113 135	$\frac{11_{4}^{3}}{14}$	$\frac{12\frac{1}{8}}{14\frac{1}{8}}$	$\frac{12\frac{1}{2}}{15}$
	sions of Br			, D Hand	LE, ROUND I		
Size No Width, Inches,	0 o					$\frac{2}{9\frac{1}{2}}$	3 95
Length, .	ons of Blan	· ·	OW PLOT	Lorg H.	ne Damen	13 Dovern	$13\frac{3}{8}$
Size No		ore, morn	OW DAUK,	LONG HAN	DLE, KOUND	2	3
Width, Inches, . Length, Inches, .						$\frac{9^{3}_{4}}{12}$	$rac{9rac{7}{8}}{12rac{1}{8}}$
Dimensions of	of Hollow I	BACK COAL				ERN PATTERN.	-
Size No Width, Inches, .	0 6		2 10 ²		$\begin{array}{ccc} 4 & 5 \\ 1\frac{1}{3} & 12\frac{3}{4} \end{array}$	$\begin{array}{ccc} 6 & 7 \\ 13 & 13\frac{1}{4} \end{array}$	$\frac{8}{13\frac{3}{4}}$
Length Inches, .	0 0		$14\frac{1}{2}$		$5\frac{1}{2}$ $16\frac{1}{4}$	$16\frac{3}{4}$ $17\frac{1}{4}$	$17\frac{3}{4}$

DIMENSIONS OF SOLID STEEL AND BACK STRAP D HANDLE SHOVELS, SQUARE POINT.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Size number, Dimensions, inches, 0 HANDLE, ROUND POINT. 0 3 0 3 0 3 0 3 0 3 0 4 0 3 0 4 0 3 0 4 0 4 0 5 0 6 0 6 0 7 0 8 0 9 0 7 0 8 0 9 0 8 0 9 9
Size number, Dimensious, inches, 2 3 $9\frac{1}{2}x12\frac{1}{2}$
DIMENSIONS SOLID STEEL AND BACK STRAP SCOOPS, EASTERN PATTERN.
Size number, . . 2 3 4 5 6 7 8 9 10 12 Width, inches, 11 $\frac{1}{4}$ 11 $\frac{1}{3}$ 11 $\frac{1}{3}$ 12 $\frac{1}{4}$ 12 $\frac{1}{3}$ 13 $\frac{3}{8}$ 13 $\frac{3}{4}$ 14 $\frac{3}{4}$ 15 15 $\frac{3}{4}$ Length, . . . 15 15 $\frac{1}{2}$ 16 16 $\frac{1}{4}$ 16 $\frac{3}{4}$ 17 17 $\frac{1}{2}$ 18 18 $\frac{1}{2}$ 19 $\frac{3}{4}$
PATENT PLAIN BACK SOLID CAST-STEEL SPADES. BRICK SPADE.
Size No. 2. Black D Handle Brick Spade, Extra,
DRAIN SPADES.
D Handle Concave Drain Spade, Polished, Extra, 14 inches Per dozen, \$19.70
DITCHING AND POST SPADES.
Fig. 616. D Handle Concave Ditching and Post Spade, black, 14 inches, Per dozen, \$19.50
D Handle Concave Ditching and Post Spade, black, 14 inches, Per dozen, \$19.50 FIRE SHOVELS, SHORT HANDLE.
Fig. 617.
No. 2. Japanned, size 4½x7x15 inches, per dozen,
No. 5. Japanned, size $4\frac{3}{8}$ x8x16 inches, per dozen,
FIRE SHOVELS, LONG HANDLE.
MEDIUM. No. 3. Japanned, size 5x8x23 inches, per dozen,
No. 3. Galvanized, " " 2.00 HEAVY.
No. 7. Japanned, size 5x8x23 inches, per dozen,
110

COMPANY, NEW YORK.

BURNET

THE

WILSON

METEOR

CLEVELAND PATTERN D OR LONG HANDLE SCOOPS. EASTERN PATTERN.



Fig. 618.

EXTRA CAST-S	TEEL HOL	LOW BACK	SCOOPS.
GEORGE GRIFFITHS.	PFEIFER.	LACKAWANI	NA. HOLMES.

BEST CAST-STEEL HOLLOW BACK SCOOPS.

BAIKU.		 PENN.		AIL	MOI		GORL	OII.	
Size number, . Black, per dozen			$\frac{2}{\$16.50}$	$\frac{3}{17.00}$	_	-	_		_

CAST-STEEL HOLLOW BACK SCOOPS.

FAUR	F LF									
Size number, .			•	4.4=00	0		5	-	•	0
Black, per dozen				\$15.00	15.50	16.00	10.90	17.00	17.50	18.00

SOLID STEEL HOLLOW BACK SCOOPS.

ROSS

SELLEPS

LANE

OLZELIIO					 		_					
Size number, . Black, per dozen	٠					$\frac{4}{15.00}$						
For Holf Po												

DIAMOND.

For Half Polished add 20 cents, Full Polished add 50 cents per dozen to above lists.

For Western Pattern Cleveland Pattern Scoops add \$1.00 per dozen to above lists.

BACK-STRAP PHILADELPHIA OR EASTERN PATTERN SCOOPS, EXTRA CAST-STEEL.



Fig. 619.

HALFI	AI W.	U	. п.	DAKILLI	d a	PELL				
Size number, .				2	3	4	5	6	7	8
Black, per dozen				\$18.50	19.00	19.50	20.00	20.50	21.00	21.50

BACK-STRAP CAST-STEEL SCOOPS.

MOODE

	 III OOK E.				DAAI	- IV.				
Size number, . Black, per dozen										

DAVEED

BACK-STRAP STEEL SCOOPS.

STONE.		F	RE'	Υ.	ROYAL.	- 1	ROWLA	ND.	ARR	ow.	
Size number, .					2	3	4	5	6	7	8
Black, per dozen					\$14.50	15.00	15.50	16.00	16.50	17.00	17.50
For Half Polis	hed	add	20	cents,	Full Polishe	d add	50 cents	per doze	n to abo	eve lists.	

SAWDUST SCOOPS, BLACK.

TELECRAPH SHOVELS, SOLID CAST-STEEL, PLAIN BACKS.



Fig. 620.

G.	GR	IFF	THS.
----	----	-----	------

Length of Handles, f	eet									6	7	8
Per doz. Black .		٠					•			\$20.50	22,50	24.50
	TLE						RTH			OMING	•	
Length of Handles,	feet								5	6	7	8
Per dozen, Black									\$19.00	19.00	21.00	23.00
	В	OAR	DM	AN.					JACKSO	N.		
Length of Handles, i	feet								5	6	7	8
Per dozen, Black		4	' e						\$17.50	17.50	19.50	21.50
A	dd fo	r Lor	ng St	raps	\$4.00) per	dozei	n ad	ditional to	list.		

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TELECRAPH SPOONS, SOLID CAST-STEEL, PLAIN BACK.



CRIFFITHS.					BARTLETT.					W.			
Length of Handles, t	teet										6	7	_
Per dozen, Black											\$22.50	22.50	24.50

CAST-STEEL, BACK STRAP, MALLEABLE

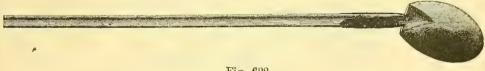


Fig. 622.

GRIFFITHS.					ROWLAND. WYON						roming.	OMING.			
Length of Handles,												7	00 80		
Per dozen, Black							~		•		\$20.50	20.50	22.50		
	Add	for L	ong	Strap	s \$4.	00 pe	er doz	en a	dditi	onal	to lists.				

SOLID STEEL SOCKET SNOW SHOVEL.



Fig. 623.

This Shovel is made from one piece of Steel, particularly strong Shovel, correct in shape and of comparatively light weight, and is particularly adapted to railways. Finished in Black.

SIZE.

Blades 101 inches wide by 14 inches long. Total length of Shovel 5 feet. Price \$7.00 per dozen D Handle Snow Shovels, same size blade 10.00 per dozen

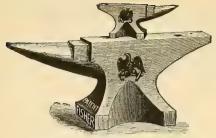


Fig. 624.

100 lbs. to 800 lbs., 9 cents per lb.

SMALLER ANVILS -" MINIMS."

	WEIG	HING ABO	DUT.	
No. 000.	8 lbs.	20 lbs.	30 lbs.	40 lbs.
\$1.00	3.50	PRICE. 4.00	4.30	4.50
	WEIG	HING ABO	OUT.	
No. 5	6	7	8	9
50 lbs.	60 lbs.	70 lbs.	80 lbs.	90 lbs.
		PRICE.		
\$5.00	5.50	6.00	7.00	8.00

"EACLE ANVIL." STANDARD DIMENSIONS.

		FACE.									
Weight.	Length.	Width.	Cutter-Hole, Square.	Length.							
Pounds.	Inches.	Inches.	Inches,	Inches,							
100	12	33	3.	81							
110	$12\frac{3}{4}$	$3\frac{5}{2}$	शंक्कां का क्यांक्तां असे असे अ	8 1							
120	$12\frac{3}{4}$	31 33 34	3	83							
130	13\frac{1}{2}	$3\frac{3}{4}$	$\frac{3}{4}$	$8\frac{1}{2}$							
140	14	4	7 8	$8\frac{1}{2}$							
150	14\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4 4 4	7 8	10							
150	15	4	$\frac{7}{8}$	10							
160	15	$4\frac{1}{4}$	1	10							
170	15	44	1	10							
180	$15\frac{1}{2}$	44	1	10							
200	$16\frac{1}{2}$	$\frac{4\frac{3}{4}}{1}$	$1\frac{1}{8}$	113							
225	$16\frac{1}{2}$	$4\frac{3}{4}$	$1\frac{1}{8}$	$11\frac{1}{2}$							
250	$17\frac{1}{4}$	$5\frac{1}{4}$	$1\frac{1}{4}$	115							
275	$17\frac{3}{4}$	5 1	$1\frac{1}{4}$	$11\frac{1}{2}$							
300	19	$ \begin{array}{c c} 5\frac{1}{4} \\ 5\frac{1}{4} \\ 6 \end{array} $	$1\frac{1}{4}$	$11\frac{1}{2}$							
350	20	6	13	13							
400	21	6	$egin{array}{c} 1_{238}^{36} \ 1_{24}^{4} \ 1_{44}^{4} \end{array}$	13							
500	23	$6\frac{1}{2}$ $6\frac{1}{2}$	$1\frac{1}{2}$	$14\frac{1}{2}$							
600	23	$\frac{6\frac{1}{2}}{}$	$1\frac{1}{2}$	$14\frac{1}{2}$							

PETER WRIGHT ANVILS.

Weights	from	84 to	500	lbs		<u>.</u> .			Base,		cts.	per	lb.
"	66	70 to	84	66	advance,				66				
44	66	60 to	70	6.6	66				66	11		66	
4.4									66	2		6.6	
6.6	64	under	: 50	66					66	3		66	

VULCAN BELLOWS.

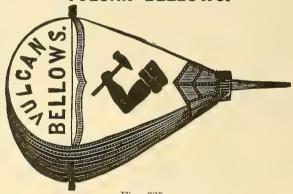
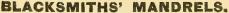
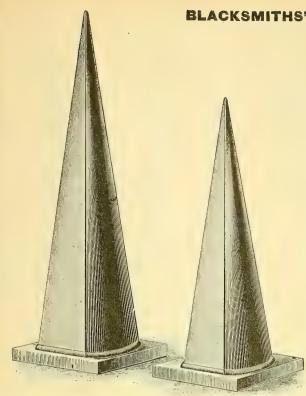


Fig. 625.

Size, Inc.	hes.			BLAC	KSMIT	HS'E	XTRA					
24	26	28	30	32 34		38	40	42	44	46	48	50
Price, Ea	ch.					00	10	1~	11	10	40	30
\$12.00	13.00	14.00	16.00	18.00 20.0	0 22.00	24.00	28.00	34.00	38.00	44.00	50.00	60.00
				D	OUBLE	EXTR	A.					
Size, in	ches .		34	36	38	40	42	44	46	3	48	50
Price, e	each .		\$22.00	24.00	28.07	32.00	38.00	44.00			0.00	70.00
				FOUND	RY OR	MOL	JLDER	RS.				
Size, in	ches .			9	10	11		12	13	1	4	16
Price, 1				\$15.00			•	24.00	26.00	_	_	33.00
				ŀ	IAND B	ELLOV	VS.					
Size, in	ches .			6	r		8		9	10		12
Price, p	er doz	en .		\$6.00	7.0	00	8.00		00	10.00)	12.00





DESCRIPTION AND PRICES.

No.	Size of Base.	Height.	Price.
1	10 in.	36 in.	\$6.00
2	10 "	46 "	7.75
3	12 "	48 "	11.00
4	16 "	62 "	16.00

We make these Mandrels in sizes as shown. They are flattened on one side to permit work to be grasped firmly with tongs.

They have square bases, which keep them from being so easily tipped over. When ordering, mention the number of Mandrel wanted.

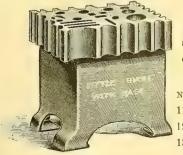
Fig. 626.

Fig. 627.

FOR MACHINE AND BLACKSMITHS' SHOPS. SWACE BLOCKS.



					Fig. 628		F	^r ig. 629		Fig.	630		
					PRICE	LIS	ST	AND	SI	ZES.			
													Planed Both Sides
Fig.	628,	Swage	Block,	18 x	18 x 4							\$11.00	\$13.00
6.6	629,	6.6	4.4	15 x	15 x 4							7.00	8.50
4.4	639	4.4	4.4	11 x	11 x 4							4.00	5.00



We also furnish Swage Blocks with base as represented. Swage Block and base are cast in one piece. When edges are used base can be tipped so that edge needed will come on upper side.

PRICE LIST AND SIZES.

No.		Not Planed.	Planed.
11, 18 x 18 x 4 x 16 high,		\$15.50	\$17.50
12, 15 x 15 x 4 x 16 "		12.00	13.50
13, 11 x 11 x 4 x 16 "	,	7.25	8.25

Fig 631. Unless otherwise ordered, Swage Blocks will be sent not planed.

BLACKSMITHS' TONGS.



STRAIGHT LIP.

Fig. 632.

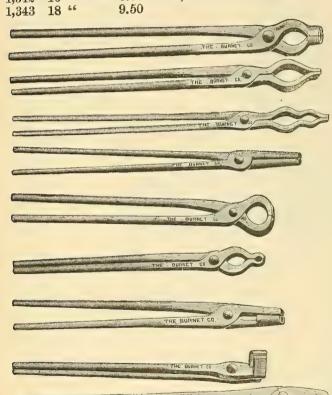
VERONA, Per lb., \$0.40

CURVED LIP, FLUTED JAW.

Fig. 633.

VERONA, . Per lb., \$0.40

Nos. 1,330 1,331 1,332 1,333	Length. 12 in. 14 " 16 " 18 "	Doz. Price. \$5.75 6.75 7.75 8.75	Nos. Length. 1,334 20 in. 1,335 22 '' 1,336 24 ''	99.75 11.00 12.50	Nos. 1,337 1,338 1,339	Length. 26 in. 28 " 30 "	Doz. Price. \$14.00 15.75 17.50
-,		OHD	ED LIP, FLUT	FD JAW.—F	ig. 633.		
		CORV	ED LIP, FLOT				D Dela
Nos. 1,340 1,341 1,342	Length. 12 in. 14 " 16 "	Doz. Price. \$6.50 7.50 8.50	Nos. Length. 1,344 20 in. 1,345 22 '' 1,346 24 ''	Doz. Price. \$10.50 12.00 13.50	Nos. 1,347 1,348 1,349	Length. 26 in. 28 " 30 "	\$15.00 17.00 19.00



THE BURNET CO

1,347	%b 111.	व	010.00
1,348	28 "		17.00
1,349	30 66		19.00
1,040	90		2000
	CAD		
	Fig. 6	34.	
Per lb.,			\$0.40
SINC	LE PI	CK I	UP.
0	Fig. 6		
Dan Us			\$0.40
Per lb.,	•		"
DOU	BLE P	ICK	UP.
	Fig. 6		
Per lb.,	0		\$0.40
			**
ROUNI	JAW	ORE	BAND.
	Fig. 6	37.	
Per lb.,			\$0.40
ĺ			
	BOL	т.	
	Fig. 6	38.	
Per lb.,			\$0.40
J. C. 10.,	•		
	RIVE	т.	
	Fig. 6	39.	
Per lb.,	5- '		\$0.60
101 10.9	•	•	401
L/	ATHE		lu s
	Fig. (340.	
Per lb.,			\$0.60

LA	Inc.	1001	
	Fig. 6	40.	
Per lb.,	٠		\$0.60
	PIC	,	
	Fig. 6	41.	
Per lb.,	U		\$0.60
1 er 10.,	•	•	φυ. σσ
Al	NGLE	JAW	
	Fig. 6	42.	
Per lb.,			\$0.60
73 A ALI	D OR	OL E	VIE
BANI			VIO.
	Fig. 6	543.	
Per lb.,			\$0.60
10110.,	•		φο.σσ
	CLII	Ρ.	
	Fig. 6	344.	
Don 11	5.		\$1.20
Per lb.,	•		φ1.20

BLACKSMITHS' TOOLS.





Fig. 646.



Fig. 647.



Fig. 648. OTTOM SWACE.

BOTTOM FULLER. TOP FULLER. $\frac{1}{4}$ to 3 in. $\frac{1}{4}$ to 3 in. Per lb., \$0.50. Per lb., \$0.50. No. 38, Verona, per lb., \$0.30.



1 to 41 in. Per lb., \$0.50. No. 39, Verona, per lb., \$0.30.

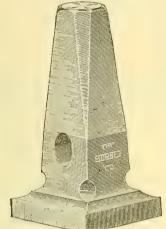


Fig. 649. SQUARE FLATTER. 1 to $4\frac{1}{2}$ in. Per lb., \$0.50.



. per lb., \$0.30.

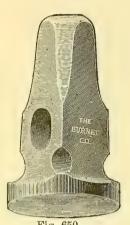


Fig. 650. ROUND FLATTER. 1 to 44 in. Per lb., \$0.50.



No. 37, Verona

Fig. 651. ADZE-EYE CREASER. Doz. price, \$10.



Fig. 652. SET HAMMER. 1 to $2\frac{1}{2}$ in. Per lb., \$0.50.



Fig. 653. HARDIE. Shanks, $\frac{1}{2}$ to $1\frac{1}{4}$ in. Per lb., \$0.50. \$0.30 No. 61, Verona .

ROCK DRILL SHARPENING TOOLS.

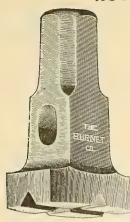


Fig. 654.

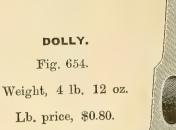




Fig. .655.

DOLLY.

Fig. 655.

Weight, 6 lb.

Lb. price, \$0.80.



TOP SPREADER. 31b. 8 oz., \$0.80.

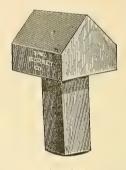


Fig. 657.

BOTTOM SPREADER.

Weight, 2 lb. 8 oz.

Lb. price, \$0.80.



SET HAMMER. Weight, 3 lb. 8 oz. Lb. price, \$0.80.

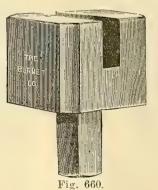


Fig. 659.

CAT HEAD HAMMER

For sharpening drills,

Per lb., \$0.40.



sow.Weight, 8 lb. 12 oz.
Lb. price, \$0.80.

فسر والأدن احو

BLACKSMITHS' TOOLS.



Fig. 661.



Fig. 662.

Fig. 663.

Fig. 664.

Fig. 665.

Fig. 666.

COBLECO



1 to 3 lb.,	per lb.,	\$0.50
No. 40 Verona.	46	.25

HOT CHISEL.

1 to 3 lb.;	per lb.,	\$0.50
No. 41 Verona,	"	.25

ROUND PUNCHES.

1	40	1	in	nor lh	\$0.55
2	UU	1	in.,	per lb.,	Φ0.00

SQUARE PUNCHES.

4 to 1 in., per lb., \$0.55

HEADING TOOLS.

Assorted.	Lb. Price
1 to 11 in.,	\$0.50

PRITCHELS (Farriers'),

Per lb. \$0.60

BLACKSMITHS' STAKES.

Size of Face.			Size of Face.		
No.	(Square.)			(Square.)	220011
1	2 in	\$1.75	5	5 in	.\$5.50
2	3 "			$5\frac{1}{2}$ "	
3	4 "	3.75	7	6 "	. 8.00
4	$\dots \qquad 4\frac{1}{2} \dots \qquad \dots$	4.50			

THE BURNEST CONTRACT

Fig. 667.

HA Per lh

Fig. 668.

HAND CHIPPING.

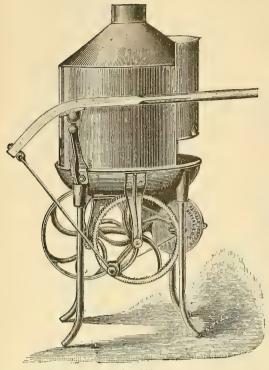
CAPE CHISEL.

\$0.60

Per lb., \$0.50

Per lb.,

BUFFALO PORTABLE FORCES.



'Fig. 669.

GLOSED HOOD FORCE.

Fig. 669 Forge.—With closed hood; height, 29 in.; fan, 10 in.; hearth, 21 x 27 in.; weight, 150 lbs.

Price, \$42.00.

The closed hoods are strongly made of steel, completely enclosing the fire-place, and are fitted with a large sliding door in front and small one in rear, for manipulating fire, etc. Thus equipped, the escape of sparks, fumes and smoke is prevented, and adapts them for use in annealing and refining metals, and in planing mills, furniture factories, saw mills, oil refineries, sugar works, etc.

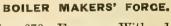


Fig. 670 Force. — With dash; height, 29 in.; fan, 10 in.; hearth, 21 x 27 in.; weight, 140 lbs.

Price, \$36.00.

No boiler shop is completely equipped without this forge, which is especially intended for the use of iron bridge and ship builders, railroad contractors and general out-door work.

They have received the endorsement of some of the most prominent users, as being far superior to anything ever produced.



Fig. 670.

TOOL MAKERS' FORCE.

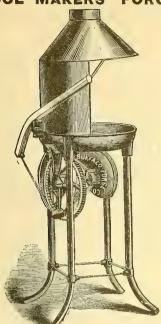


Fig. 671.

Fig. 671.—Half-open hood; height, 33 in.; size of hearth, 18 in. diameter; weight, 75 lbs.

Price, \$27.00.

Fig. 671. — With closed hood; height, 33 in.; hearth, 18 in. diameter; weight, 80 lbs.

Price, \$30.00.

For use in heating and tempering small tools.

RAILROAD AND BRIDGE BUILDERS' FORCE.



Fig. 672.

Fig. 672.—Size of hearth, 18 in. diameter; height, 32 in.; weight, 110 lbs.

Price, \$32.00.

This forge is designed especially for railroad track and bridge work, structural iron and ship builders, pipe lines, tank builders, etc. It is practically impossible for breakages to occur, as all the machinery is protected by a steel drum or barrel, and it will withstand any amount of hard usage without injury.

STATIONARY BLAST FORCE.

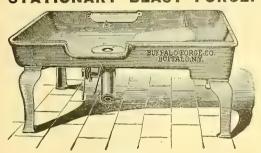


Fig. 673.

DIMENSIONS IN INCHES:

Fire Pan, $46\frac{1}{2}$ x47; Coal Box, length, $28\frac{1}{2}$; width, 12; depth, 10; Water Tank, length, $27\frac{3}{4}$; width, 12; depth, 10; Height of Forge, $26\frac{1}{2}$; weight, 722 lbs. Price, \$70.00.

Fig. 673.—Stationary Blast Forge is designed for the heaviest kind of blacksmith and shipsmith work. The dimensions given afford an idea of its adaptability to the heavy class of work for which it was designed, and which has made it a popular pattern for railroad shop, ship smithing, etc.

RIVETERS' PORTABLE FORGE.



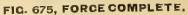
Fig. 674.

Fig. 674—With dash; height, 33 in.; size of hearth, 18 in. diameter; weight, 70 lbs.

Price, \$24.00.

BUFFALO BLACKSMITHS' FORCE.

WITH STEEL HOOD.



With Hand Lever.

Height, 30 in.; size of hearth. 28 x 40 in.; fan, 14 in. diameter; weight, 250 lbs.; with water tank, 300 lbs.

This Forge is guaranteed to produce a welding heat on 3-inch iron in 5 minutes, and on 4 inch iron in 10 minutes. Sold only on guaranteed merit.

FIG. 676, POWER FORCE.

Height, 30 in.; size of hearth, 28 x 40 in.; fan, 14 in. diameter; weight, 250 lbs.; with water tank, 300 lbs.

PRICES.

Fig.	676	Without water tank	\$54.00
6.6	1.6	With water tank	. 58.00
6.6	4.4	With hand-power attack	h-
		ments	58.00
6.4	1.4	With hand-power attach-	

ments and water tank 62 00

Built complete, with tight and loose pulleys; also, cut-off for the blast, by which the fire can be regulated to any degree.

The hand attachments are a very convenient feature for use in case of breakdowns or when engine is stopped.



Fig. 677. Forge.—With half-open bood; height, 29 in.; fan, 10 in.; hearth, 21 x 27 in.; weight, 145 lbs.

These forges are guaranteed to produce a welding heat on 2½ to 3-inch iron in from 5 to 10 minutes, and will do heavier work if required.

FIG. 678, POWER FORCE.

Height, 29 in.; fan, 10 in. diameter; hearth, 21 x 27 in.; weight, 140 lbs.

PRICES.

Fig.	678.	-Without water tank	\$45.00
6.6	6.6	With water tank	49.00
4.6	4.6	With hand-power attach-	
		ments	48.00

" With water tank and hand-

power attachments . 52.00

For general work in machine shops, mills, or wherever power is available, this forge is especially adapted. The hand-power attachments will be found particularly serviceable in all cases of breakdowns or repairs after hours, when it is not desirable to run the engine to drive the forge fan.

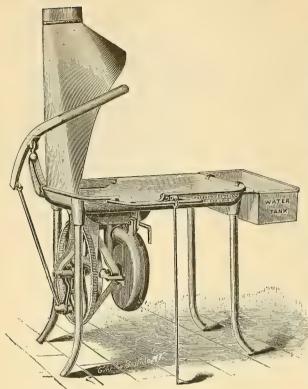
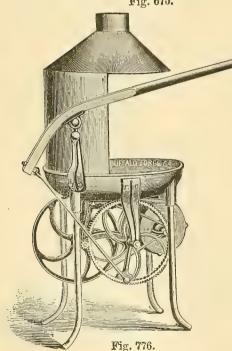
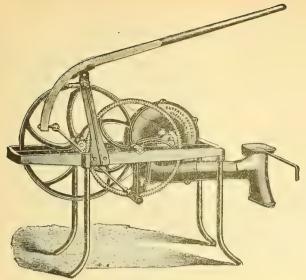


Fig. 675.





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Fig. 678.

BLACKSMITHS' CRANK HAND BLOWER.

Fig. 680.

Size of fan, 14 in.; height, 47 in.; weight, 105 lbs.; with tuyere, 125 lbs.

Price, with tuyere, \$20.00. Price, without tuyere, \$18.00. Tuyeres, price, each, \$3.50.

Blower, Fig. 680, is designed to meet requirements where, for convenience, a Crank Blower is desirable. In its construction we have embodied our Patent Rachet Crank, which does not continue to revolve when released by the operator, but falls in the position indicated in the cut, which is most convenient in starting the Blower. At 30 turns of crank per minute, this blower will blow strong enough to heat 3 to 4-inch iron in from 5 to 10 minutes.

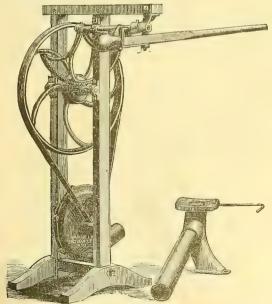


Fig. 681.

BLACKSMITHS' HORIZONTAL HAND BEOWER:

Fig. 678.

Price, with tuyere complete, \$32.00 Price, without tuyere . . . 30.00

Fig. 679.

Price, with tuyere complete, \$36.00 Price, without tuyere . . . 34.00

Tuyeres. Price, each . \$3.50

Blower. Fig. 678.—Size of fan. 14 in.; height, 35 in.; length, 32 in.; weight, 130 lbs.; with tuyere, 150 lbs.

BLOWER. Fig. 679.—Size of fan, 17 in.; height, 35 in; length, 35 in.; weight, 200lbs.; with tuyere, 225lbs.

This Blower is designed for extra heavy work, as boilermakers' flange fires, heavy ship-smithing, etc.

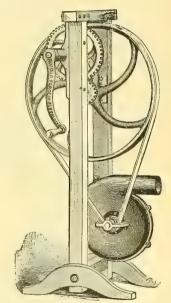


Fig. 680. -Made only right hand.

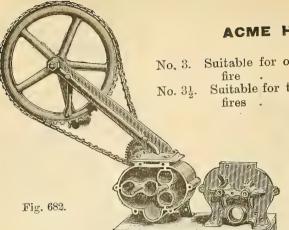
BLACKSMITHS' UPRICHT HAND BLOWER.

Fig. 681.

Size of fan, 14 in. diameter; height, 47 in.; weight, 115 lbs.; with tuyere, 130 lbs.

Price, with tuyere complete,		\$25.00
Price, without tuyere,		23.00
Tuyeres, price, each,		3.50

191



ACME HAND BLOWER

No. 3. Suitable for one ordinary blacksmith's \$17.50

No. 3½. Suitable for two ordinary blacksmith's fires \$39.50

The above are made either for right or left hand fires.

Allow 60 cubic feet per minute for each ordinary blacksmith's fire.

No. 3 is guaranteed to give blast equal to a 60-inch bellows.

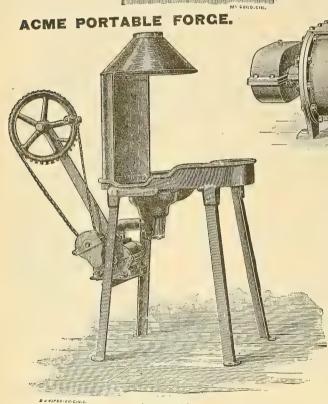


Fig. 684. SIZES AND PRICES.

	SIZ.	ES AND P	KIUED.	
		Size Bellows		Prices, f. o. b.
No.	Size Hearth.	Equal to	*Weight.	New York
1	$21\frac{1}{2} \times 13$ in.	30 in.	145 lbs.	\$33.00
2	24 x 16 "	40 ''	170 ''	37.00
3	20 x 30 "	50	250 ''	41.00
4	37½ x 25 ''	60 "	300 "	45.00
5	$46\frac{7}{2} \times 31$ "			53.00
0		*In shipping or	ler. 192	

Fig. 683.

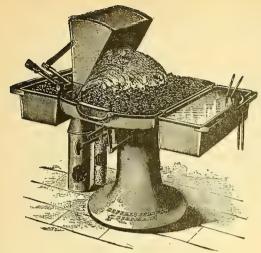
MEFEE-GIN D

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
3 172 1¼ in. 5½ x 1¾ in. 5½ x 1¾ 3½ 325 2 " 8 x 2 4 648 3 " 10 x 3 No. Speed. 3	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Ł
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
No. Speed. 3	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
$3\frac{1}{2}$	
4	
4	
210.	
$3 10 \times 10^{\frac{1}{2}} \times 16 \text{ inches}$	3.
$3\frac{1}{2}$ 11 x 13 x 23 "	
4 12 x 16 x 26 "	
Weights.	
No. Net. Gross.	
3 55 lbs. 75 lbs	S.
$3\frac{1}{3}$ 85 " 110 "	
4 188 " 215 "	
No. 3 made with top dis	3-

charge only. No. $3\frac{1}{2}$ and No. 4 with top or side dis-

Price of Fig. 683 on application.

charge.



BUFFALO STATIONARY BLAST FORCE.

(PATENTED.)

Fig. 685.

With Down-Draft Smoke Exhaust Hood; also Anti-Clinker Dumping Tuyere.

Size of Fire Pan, 24 in. x 36; in. Coal Box, length, $27\frac{1}{4}$ in.; width, 9 in.; depth, $6\frac{1}{2}$ in. Water Tank, length, 271 in.; width, 9 in.; depth, 6½ in. Height of Forge, 29 in.; weight. 470 lbs.

Price, \$65.00.

BUFFALO STATIONARY BLAST FORCE.

(PATENTED.)

Adapted to Moderate and Heavy Work.

Fig. 686.

With Down-Draft Smoke Exhaust Hood; also Anti-Clinker Dumping Tuyere, Blast Gate, and Coal and Water Boxes.

Size Fire Pan, 37 in. x 41 in. Coal Box, length, 351 in.; width, 73 in.; depth, 31 in. Water Tank, length, $27\frac{1}{4}$ in.; width, 9 in.; depth, 6½ in. Height of Forge, 27½ in. Weight, 550 lbs.

Price, \$70.00.

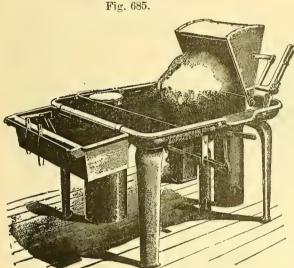


Fig. 686.

BUFFALO STATIONARY BLAST FORGE.

(PATENTED.)

For Moderate and Heavy Work. Steel Plate Construction.

Fig. 687.

With Down-Draft Smoke Exhaust Hood, Anti-Clinker Dumping Tuyere and Blast Gate.

Size Fire Pan, 36 in. diameter. Height of Forge, 26 in. Weight, 330 lbs.

Price, \$75.00.

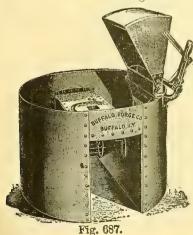




Fig. 688.

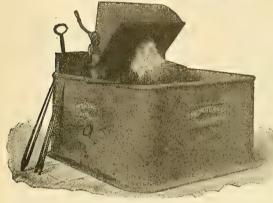


Fig. 689.

BUFFALO STATIONARY BLAST FORCE.

(PATENTED.)

For Moderate and Heavy Work.
Steel Plate Construction.

Fig. 688.

With Down draft Smoke Exhaust Hood, Anti-clinker Dumping Tuyere, Blast Gate, and Coal and Water Boxes.

Size Fire Pan, 36 in. diameter; Coal Box, length, 15½ in.; width, 10 in.; depth, 15 in. Water Tank, length, 18½ in.; width, 10 in.; depth, 15 in. Height of Forge, 26 in. Weight, 410 lbs.

Price, \$100.00

BUFFALO STATIONARY BLAST FORCE.

(PATENTED.)

For Extra Heavy Work in Railroad Repair Shops, etc.

Fig. 689.

With Down-draft Smoke Exhaust Hood and Blast Gate.

Size of Fire Pan, 42 in. x 42 in. Height of Forge, 24 in. Weight, 1,540 lbs.

PRICE ON APPLICATION.

SPECIAL BUFFALO STATIONARY BLAST HEATING FORCE.

With Down-draft Exhaust Hoods for Removing Gases and Fumes. Designed for Large Railroad Work.

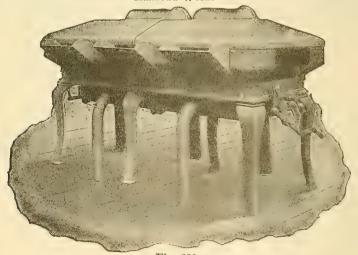


Fig. 690.
PRICE ON APPLICATION.

IMPROVED COUNTER-SHAFTS FOR STEEL PRESSURE BLOWERS.

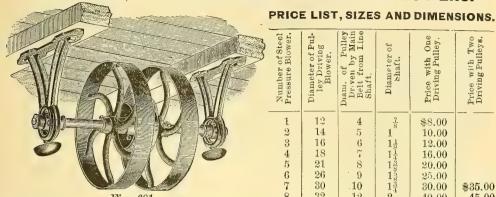


Fig. 691.

Nos. 1 to 6 regularly have but one driving pulley; Nos. 7 to 12 have two driving pulleys Additional pulleys, also tight and loose pulleys, may be furnished on these counter-shafts at a small addiditional price.

Number of Steel Pressure Blower,	Diameter of Pulley Driving Blower.	Drawn of Pulley Draven by Main Belt from Line Shaft.	Diameter of shaft,	Price with One Driving Pulley.	Price with Two Driving Pulleys.
1	12	4	7.8	\$8.00 10.00 12.00 16.00 20.00 25.00 30.00 40.00	
1 2 3 4 5 6 7	12 14 16 18 21 26 30 32	4 5 6 7 8 9 10 12	1 °	10.00	
3	16	6	1 1 1 1 1 1 1 1 1 1 1 1 2	12.00	
4	18	Jos d	$1\frac{1}{3}$	16.00	
5	21	8	$1\frac{3}{8}$	20.00	
6	26	. 9	$1\frac{5}{2}$	25.00	
7	30	.10	$1\frac{3}{4}$	30.00	\$35.00
8	32	12	2	40.00	45.00

 $2\frac{1}{4}$ $2\frac{1}{4}$

23

3

3

16

17

18

18

50.00

70.00

80.00

90.00

100.00

60.00

80.00

90.00

100.00

110.00

36

40

42

44

44

10

11

115

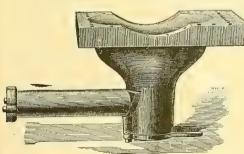
12

IMPROVED BLAST GATES, SLIDE PATTERN.

	S	ize.			PRIC		ST	WITH	SIZES.			Price.
	2	in.		iron	with	steel	slide	, .				\$1.00
	2	6.	6.6	4.6	4.6	6.6	6.6					1.25
	3	6.6	. 6	6.6	6.6	6.6	66					1.50
	4	6.6	6.6	6.6	6.4	6.6	6.6					2.00
WWW.	5	6.6	6.6	6.6	6.6	66	6.6					2.25
	6	6.6	6 6	6.6	6.6	4.6	6.6					2.50
	8	4.6	4.4	66	66	6.6	66				· ·	3.50
de de la constante de la const	10	6.6	4.4	44	6.6	66	44		Ĭ	· ·		5.00
JAN GARRIER	12	66	6.6	+ 6	6.6	4.4	66			•	•	6.50
	14	6.6	6.6	66	6.6	6.6	. 66	•	•	•	•	8.00
Million manufic	16	66	44	6.6	66	66	6.6	•	•	•	•	12.00
	18	6.6	4.6	66	4.6	6.6	6.6	•	•	•	•	16.00
	20	66	4.6	66	66	66	66		•	*	•	
Fig. 692.	~ 0	6.6		6.6	6.6	66	4.6	•	•	•	•	18.00 21.00
	24											21.00

These Gates are designed especially for regulating the supply of air in pipes from Buffalo Blowers and Exhaust Fans. The lever pattern of Blast Gates can also be furnished at same prices, but their use is not generally convenient or desirable.

ACME FIRE-BED AND TUYERE. FOR USE IN BRICK FORCE.



SIZES AND PRICES.

No. 3, 14¹ in. square x 11¹ deep. Weight, 63 lbs.

Price, \$5.70.

No. 4, 18 in. square x 12 deep. Weight, 80 lbs.

Price, \$6.50.

Fig. 693.

DIRECTIONS FOR SETTING.

Construct forge with inside cross walls 12½ inches in the clear for No. 3 and 16 inches in the clear for No. 4. The space below fire-bed must be left entirely open to permit free circulation of air. After fire-bed is placed, the hearth should be joined up to it on all sides as high as the top.

THE BUFFALO STEEL PRESSURE BLOWER, FOR CUPOLA AND FORCE FIRES.



	es.		Lang Company	1 5	aft.	j.	ADJUSTA	BLE BED
Number of Blower.	Height in Inches	Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Price without Countershaft	Price with Countershaft.	Price with Bed but without Countershaft.	Price with Bed and with Countershaft.
1 2 3 4 5 6 7 8 9 10 11 11 12	125 15 20 24 26 30 35 40 45 56 66 76 80	$\begin{array}{c} 3\frac{5}{2} \\ 4\\ 4\frac{5}{18} \\ \frac{1}{18} \\ $	$\begin{array}{c} 2^{\frac{1}{2}\frac{1}{12}\frac{1}{14}} \\ 2^{\frac{1}{2}\frac{1}{12}\frac{1}{14}} \\ 4^{\frac{1}{4}\frac{1}{4}\frac{1}{12}} \\ 4^{\frac{1}{4}\frac{1}{4}\frac{1}{12}} \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 10 \\ \end{array}$	13-1-58 223 3 3 1-1-2-2 4 4 5 3 4 1-4 7 8	\$12.00 18.00 26.00 36.00 44.00 55.00 70.00 90.00 115.00 225.00 275.00 325.00	\$20.00 28.00 38.00 52.00 64.00 80.00 100.00 130.00 230.00 350.00 400.00	\$100.00 180.00 170.00 265.00 380.00 475.00	\$135.00 175.00 230.00 350.00 435.00 500.00 625.00

Fig. 694.

Nos. 1 to 6 Blowers, inclusive, have one pulley, and Nos. 7 to 12 have two pulleys.

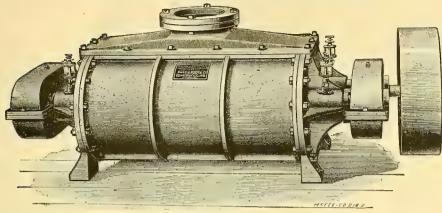
TABLE OF SPEEDS AND CAPACITIES AS APPLIED TO FORCE FIRES.

Number of	Number of Forges Ordinary Size.	4-OUNCE	PRESSURE.	5-OUNCE	PRESSURE.	6-OUNCE	PRESSURE,	7-OUNCE PRESSURF.		
		SPEED. No. of Revolutions per Minute.	Cubic Feet of Air per Minute.	SPEED. No. of Rev. olutions per Minute.	Cubic Feet of Air per Minute.	SPEED. No. of Revolutions per Minute.	Cubic Feet of Air per Minute.	SPEED. No. of Revolutions per Minute	Cubic Feet of Air per Minute.	
2	4	4825	336.	5405	369.6	5933	403.2	6422	436.8	
3	5	3977	493.5	4456	522.85	4892	592.2	5256	641.55	
4	6	3318	560.	3718	616.	4081	672.	4417	728.	
5	7	2952	686.	3317	754.6	3630	823.2	3929	891.8	
6	9	2556	831.25	2864	914.37	3156	997.5	3170	1074.6	
7	13	2275	1252.3	2547	1377.5	2798	1502.7	3028	1627.9	
8	18	2067	1559.45	2118	1747.2	2543	1897.8	2752	2075.7	
9	26	1850	2013.14	2073	2255.6	2276	2476.8	2464	2669.6	
10	38	1371	3096.3	1668	3469.3	1686	3808.1	1825	4121.6	
11	60	1108	4168.	1240	4670.	1363	5126.	1500	5548	
111	92	960	5835.	1051	6538.	1160	7176.	1250	7768.	
12	98	900	6870.	1000	7705.	1100	8457.	1200	8876.	

TABLE OF SPEEDS AND CAPACITIES AS APPLIED TO FOUNDRY CUPOLAS.

Number of Blower.	Square Inches Blast.	Diam, Inside of Cupola, in Inches	Pressure in Ounces.	SPEED. No. of Revolu- tions per Minute.	Melting Capacity in lbs. per Hour.	Cubic Feet of Air Required per Minute.	Pressure in Ounces.	SPEED, No. of Revolu- tions per Minute.	Melting Capacity in lbs. per Hour,	Cubic Feet of Air Required per Minute.
4 5 6 7 8 9 10	4 6 8 14 18 26 36 45	20 25 30 35 40 45 55 65	8 8 8 8 10 10 12	4732 4209 3660 3244 2948 2785 2195 1952	1545 2321 3093 4218 5425 7818 11295 16955	666 773 951 1486 2199 3203 4938 7707	9 10 10 10 10 12 12 14	5030 4726 4108 3642 3310 3260 2413 2110	1647 2600 3671 4777 6082 8598 12378 18357	717 867 1067 1668 2469 3523 5431 8358
$\frac{11\frac{1}{2}}{12}$	55 75	72 84	12 12	1647 1625	22607 25836	10276 11744	14 14	1797 1775	25176 28019	11144 12736

ROOTS' BLOWERS FOR CUPOLAS.



A MARINE WATER AND A STATE OF THE ASSESSMENT OF						
al .						_
No. of the second	*			MCFFF-	CO CIN O	
	. 1999 3	1	Fig. 695.		UUINU	
	s		ND CAPAC	ITIES.		
No. 1 Blower.—Ad					ischarges 3	cubic feet per
revolution.	250 revoluti	ons per mir	ute will melt	11 tons per	hour.	
	280 "	66 6	6 66	15 " "	46	
No. 2 BLOWER Ad	0.00			110		cubic feet per
revolution.		-		Ü	Ü	1
	275 "	Î 6 6 6	ute will melt	27 " "	4.6	
No. 3 BlowerAd	anted to a or	i ii Lot Os elocu		3 " "	u Secharaco S	cubic feet per
revolution					ischarges o	cubic reet per
	225 revoluti 250 ''	ons per mii	iute will melt	$3\frac{3}{5}$ tons per	hour.	
-	275 "		6 6 6	42 " "	"	
No. 4 Blower Ad revolution.	apted to a cu	ipola 33 to 4	12 inches insi-	de lining. D	ischarges 18	3 cubic feet per
			ute will melt		hour.	
	225 '' 250 ''		16 46	$\frac{5\frac{4}{5}}{6\frac{1}{5}}$ " "	44	
No. 5 Blower.—Adrevolution.	lapted to a cu	ipola 43 to	48 inches insi	de lining. D	ischarges 29	2 cubic feet per
revolution.	175 revoluti	ons per mi	nute will melt	$t^{\frac{7}{10}}$ tons per	hour.	
	200 " 225 "	66	16 66	$9^{\frac{1}{10}}$	66	
No. 6 BlowerAd		ipola 48 to (30 inches insi	de lining. D	ischarges 3'	7 cubic feet per
revolution.	150 revoluti	ons per mi	nute will melt	t 11 1 , tons ne	r hour.	
	175 "	1.6	 	$12\frac{9}{10}$ "	66	
No. 7 Blower.—Ad				ITE.		Discharges 63
cubic feet per	r revolution.		nute will mel		er hour.	5
	140 "	ions ber mi	66 66	173 6 6	6.6	
No. 8 BlowerAd	160 "	mole 84 or	u — u two cunolas 6	$20\frac{1}{10}$ " " 30 inches insi		Discharges 116
cubic feet per	r revolution.					2 ibeharges 110
	90 revoluti	ions per mi	nute will mel	$23\frac{1}{5}$ tons pe	er hour.	
	110 "		66 66	251 "	i – ii inaida linin	n Dischara
No. 9 Blower.—Ad 196 cubic feet	t ner revoluti	on.			inside linin _i	g. Discharges
	80 revolut	ions per mi	nute will mel	t 31½ tons p	er hour.	
q	90 "		66 66	39 " "	6 66	
Sizes . 1	2	3	4 5	6	7	8 9
Prices . \$			197			
			101			

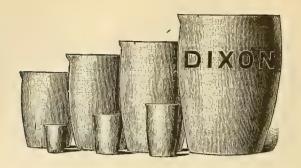


Fig. 698.

Nos. 1 2 3 4 5 6 7 8 9 10	Weight of Crucible. Lbs. Oz. 8 12 1 2 6 2 6 2 14 3 6 4 6 8	Height Outside. Inches. $3\frac{1}{4}$ 4 $4\frac{1}{5}$ $5\frac{1}{5}$ $6\frac{1}{4}$ $6\frac{1}{5}$ $7\frac{1}{5}$ $7\frac{1}{5}$	$\begin{array}{c} \text{Diameter} \\ \text{at the} \\ \text{Top} \\ \text{Outside.} \\ \text{Inches.} \\ \frac{25}{28} \\ \frac{27}{8} \\ \frac{35}{2} \\ 4 \\ \frac{41}{18} \\ \frac{45}{2} \\ 5 \\ \frac{1}{5} \\ \frac{38}{8} \\ 6 \end{array}$	$\begin{array}{c} \text{Diameter} \\ \text{at the} \\ \text{Bilge} \\ \text{Outside.} \\ \text{Inches.} \\ \frac{25}{27} \\ \frac{31}{4} \\ \frac{41}{2} \\ \frac{41}{5} \\ \frac{14}{5} \\ \frac{51}{4} \\ \frac{14}{5} \\ \frac{51}{4} \\ \frac{14}{5} \\ \frac{14}$	Diameter at the Bottom Outside. Inches. 158 224 225 224 224 224 224 224 224 224 224	Prices. 20 cts. each, 25 " " 30 " " 40 " " 45 " " 50 " " 60 " " 65 " "	Holding Capacity. Three
12 14 16 18 20 25 30 35 40 45 50 60 70 80 90 00 25 50 00 00	7 6 8 14 9 12 11 6 13 8 15 18 4 21 25 2 27 8 30 33 36 6 42 46 48 53 8 65 8 78 4 96 12	$\begin{array}{c} 8 \\ 8 \\ 8 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\$	$\begin{array}{c} 6\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 6\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 6\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 7\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 8\frac{1}{8}\frac{1}{8}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 9\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 10\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 10\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 11\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 12\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 13\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 15\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 15\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\\ 13\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4^{\frac{1}{2}}}\frac{1}{4$	$6\frac{\pi}{4}$ $7\frac{\pi}{4}$ $7\frac{\pi}{4}$ $8\frac{\pi}{5}$ 9 $9\frac{\pi}{10}$ $10\frac{\pi}{4}$ $11\frac{\pi}{4}$ $11\frac{\pi}{2}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$ $12\frac{\pi}{12}$	5 5 5 5 6 6 6 6 7 7 7 7 7 8 8 8 8 9 9 9 10 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	No. 12 and upwards $5\frac{1}{2}$ cents per No.	of Molten Metal per Number.

PRICES OF COVERS.

Vo.	1					10	cents	each.]	No.	8				15	conta	each.
4.6	2					10	6.6	4.4		66	0	•	•	•			
6.6	3		-		-	10	4.6		- (40	• •			15	6.4	4.6
	~					10				6.6	10				15	6.6	6.6
6.6	4					10	6.6	4.6		66	12	•	•	•			
6.6	5					10	4.6	6.4	1	6.6					18	6.6	4.4
		*	•	•		4			1		14				18	6.6	4.4
6.6	6					15	6.6	4.4	- 1	66	16		•	•	10		
6.6	17					15	6.6	+ 6		66		* *			18	6.6	4.6
		2				Til					18 and	upward	. 1 :	cent:	ner N	0	

The above prices are subject to change without notice.



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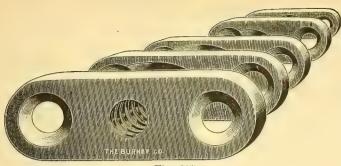


Fig. 697.

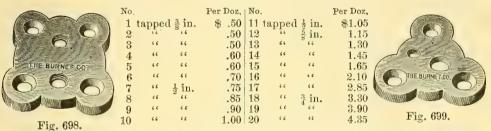
DIAMOND RAPPING PLATES AND DRAW SCREWS.

Price per 100.

		T	
$\frac{1}{2}$	inch	Plates,	\$3,25
34	66	6.6	4 25
1	66	6.6	5.75
14	66	6.6	8 50
$1\overline{\frac{1}{8}}$	66	46	12.75

Only One Size Draw Screw Required—3-inch Draw Screws, \$12.75 per 100.

FRASER'S RAPPING PLATES.



Made of Malleable Iron with Rapping Holes, Tapped Draw Holes and Screw Holes.

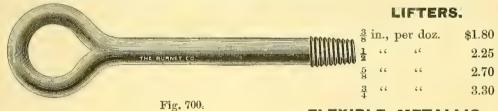


Fig. 701.

FLEXIBLE METALLIC FILLET.

Not affected by heat, cold, or moisture. Will work around shortest curves.

Put up in 100-foot Reels.

1/2 14 Size number .12 .15 .20 .08 .06 .10.05 \$0.04 Price per foot . LEATHER FILLET.



Fig. 702.

This cut shows measurements in inches, angle measure.

Price per 100 feet.

Size 4.00 5.00 6.00 7.008.00 1.50 2,00 3.00 Price .

PATTERN LETTERS AND FIGURES.

MEASURE ON FACE.

A 3-inch Letter or Figure will measure 7-16 on the back.

Fig. 703.

³/₈ inch

Face Measure.

	12.0111	710 0				
Size, inches Price, each, cts.	$.02^{\frac{1}{8}}$	$.02^{\frac{3}{16}}$	$\frac{1}{4}$.02	.02	$.02\frac{3}{2}$	$.02\frac{7}{16}$
Size, inches Price, each, cts.	$.02\frac{1}{2}$	$03^{\frac{9}{16}}$	$\frac{5}{8}$.03	$.0\overset{\frac{3}{4}}{\overset{1}{2}}$.04	$\begin{array}{c} 1\\.04\frac{1}{2}\end{array}$
Size, inches . Price, each, cts.		$\frac{1\frac{1}{2}}{.08}$	$\frac{1\frac{3}{4}}{09}$	$^{2}_{.10}$	$\frac{2\frac{1}{2}}{.14}$	$\frac{3}{.16}$



Fig. 704. $\frac{7}{16}$ inch Face Measure.

SHARP COTHIC STYLE.



Fig. 705. $\frac{3}{4}$ inch Face Measure.

	SHAI	RP GC	HIC	21 Y	LE.		
Size, inches Price, each,	cts.	$.02^{\frac{1}{8}}$	$\frac{\frac{3}{16}}{.02}$	$\frac{1}{4}$.02	$.02^{\frac{5}{16}}$	$02\frac{3}{2}$	$.02\frac{7}{16}$
Size, inches Price, each,		$.02^{\frac{1}{2}}_{2}$.03	$.03\frac{3}{4}$.04	$^{1}_{.04\frac{1}{2}}$
Size, inches Price, each,		$\frac{1\frac{1}{4}}{.06}$	$\frac{1\frac{1}{2}}{.08}$	$\frac{1\frac{3}{4}}{.09}$	$^{2}_{.10}$	$\frac{2\frac{1}{2}}{.14}$	$\frac{3}{.15}$



Fig. 706.
½ inch
Face Measure.

ROUND FACE COTHIC.



 $\frac{1}{2}$ inch Face Measure. These are lighter and thinner than the sharp face.

Size, inches . Price, each, cts.	$\frac{\frac{3}{16}}{.02}$		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$02\frac{7}{16}$	$.02\frac{1}{2}$
Size, inches . Price, each, cts.	$\frac{9}{16}$	$.03^{\frac{5}{8}}$	$.03\frac{1}{2}$	$\frac{\frac{1}{8}}{.04}$	$\frac{1}{4\frac{1}{2}}$
Size, inches .	$1\frac{1}{4}$	$1\frac{1}{2}$	2	21/2	3
Price, each, ets.	.06	.08	.10	$.1\overline{4}$.15

COTHIC STYLE FLAT FACE.

 $\frac{\frac{1}{8}}{.02}$

 $.02\frac{1}{3}$

13

.08

 $02^{\frac{5}{15}}$

.03

 $1\frac{3}{4}$

.09

.02

 $.03\frac{1}{2}$

2

.10

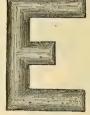


Fig. 708.

1 inch

Face Measure. $\frac{3}{8}$ $02\frac{7}{2}$ $02\frac{1}{2}$

11

 $.0\bar{6}$

.14



Size, inches

Size, inches

Size, inches

Price, each, cts.

Price, each, cts.

Price, each, cts.

Fig. 709, 1 inch Face Measure,

FANCY LETTERS AND FIGURES.



Fig. 710.

³/₄ inch

Face Measure.

Size, inches Price, each, ets	.03	.03	.04	$\frac{3}{4}$.05
Size, inches Price, each, cts.	1 .06	$\frac{1\frac{1}{4}}{.08}$	$\frac{1\frac{1}{2}}{.10}$	$\frac{2}{.12}$



.15

Fig. 711.
1 inch
Face Measure.

PATTERN LETTERS AND FIGURES.

MEASURE ON THE FACE.

SKELETON COTHIC.

These are lighter and thinner than the Round Gothic. 1 3 1 5



D ·		-	8.	16	4	1.6	8
Price, each,	cts.		.02	.02	.02	.02	$.02\frac{1}{3}$
Size, inches			9	5	3	7	1 ~
Price, each,	cts.		.03	.03	$.0\overline{3}\frac{1}{3}$.04	.041
Size, inches			11/4	14	13	2	$2\overline{1}$
Price, each, c	ets.		$.0ar{6}$.08	$.09^{\pm}$.10	.14

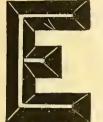
inch.

 $.02\frac{1}{2}$

Fig. 713. $\frac{3}{4}$ inch. Face Measure.

Face Measure.

EXTRA THICK SHARP COTHIC.



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Size, inches $.04^{\frac{3}{4}}$ Price, each, cts. . $.\tilde{0}3$ Size, inches. 1 14 11 13 2 Price, each, cts. .05 .07 $.\bar{0}9$.10.12 These are also made with Flat Top at same list price.



HEAVY BLOCK LETTERS AND FIGURES.

Fig. 715. $\frac{3}{4}$ inch. Face Measure.

Fig. 714. 1 inch. Face Measure.

These are desirable where letters on face of castings are planed off.



Size, inches			1/2	<u>ş</u>	3	1
Price, each, cts.			$.\overline{0}4$.05	$.0\overline{6}$.07
Size, inches			$1\frac{1}{4}$	$1\frac{1}{2}$	2	
Price, each, cts.			.09	.11	.13	

Fig. 716. inch.

FRACTIONALS,

To match all sizes of figures of Roman, Sharp Gothic, Round Gothic and Flat Gothic styles.









Fig. 717.

Fig. 718.

Fig. 719.

Fig. 720.

Price of each Fractional double the price of same size figure. That is, listprice of \(\frac{1}{2} \) inch figure is $2\frac{1}{2}$ cents—fractional to match would be 5 cents, etc.

ROMAN STYLE BRANDING LETTERS. (Reversed.)

For making Cast Iron Branding Irons.

1 inch deep.

1 Size, inches 1 .03 .05 Price, each, cts. . .03 .04.06 .07

Fig. 721.

COTHIC STYLE, EXTRA DEEP BRANDING LETTERS.

(Reversed.)

All 5-16 inch deep.

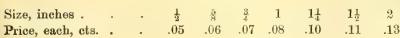




Fig 722.

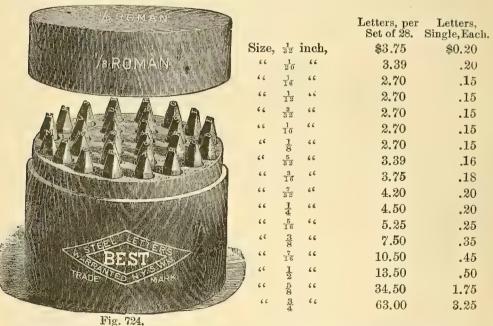
BEST STEEL LETTERS AND FIGURES.

HOMAN				Figures, per Set of 9.	Figures, Single, Each.
	Size,	32	inch,	\$1.25	\$0.20
	66	20	66	1.13	.20
ROMAN	66	16	66	.90	.15
	66	12	66	.90	.15
A A A A	66	$\frac{3}{32}$	66	•90	.15
	66	$\frac{1}{10}$	66	.90	.15
	66	18	66	,90	.15
	66	1 8 5 8 2	66	1.13	.16
	66	<u>8</u>	66	1.25	.18
TRIAIN CAN INCOME THE CAN INCOME.	66	$\frac{7}{32}$	66	1.40	.20
	66	1	66	1.50	.20
STOT STEEL	66	18	66	1.75	.25
	66	3 8 7	66	2,50	.35
# THEURES	66	7	66	3.50	.45
	66	$\frac{1}{2}$	66	4.50	.50
	66	50 34	6.6	11.50	1.75
Fig. 723.	66	34	46	21.00	3.25

These letters and figures are made of the best steel, are correctly shaped, hardened, and the temper carefully drawn. These are variously used, according to size, for stamping Key Checks, Jewelers' Checks, Baggage Checks, Iron, Steel, Wood, Leather, Patented Articles, etc., etc.

Every set is put up in a neat, compact, dust-proof wooden box, properly labeled

—handy alike to the dealer and the person using them.



We furnish also hollow-faced steel stencil dies for letters and figures, all sizes; malleable iron case-hardened stencil dies, $\frac{3}{4}$ and 1 inch; steel stamping dies for letters and figures to $\frac{1}{2}$ inch.

NEW LINE OF S WRENCHES. HEXAGON.

The size of finished openings on list shows the largest size the openings can be finished.

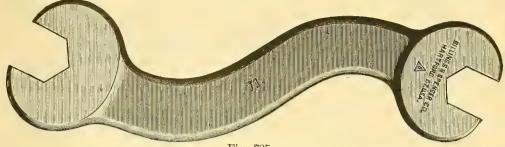


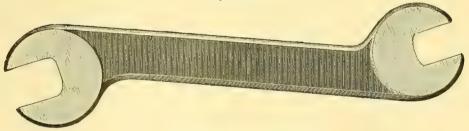
Fig. 725.

3.7	Length	Thickness	-FINISI	HED.	-Unfinish	HED.
No.	Inches.	of Head. Inches.	Size of Opening.	Price.	Size of Opening.	Price.
70	4	$\frac{1}{4}$	$\frac{3}{8}$ and $\frac{7}{16}$	\$0.20	$\frac{5}{16}$ and $\frac{3}{8}$	\$0.10
71	5	16	1 66 <u>16</u>	.30	7 66 ½	.15
72	6	38	3 66 <u>18</u> 4 16	.40	9 66 <u>5</u>	.20
73	7	76	7 · · · 1	.50	$\frac{1}{1}\frac{1}{6}$ 66 3	.25
74	8	$\frac{1}{2}$	1 " $1\frac{1}{8}$.60	$\frac{1}{1}\frac{3}{6}$ 46 $\frac{7}{8}$.30
75	9	18	$1\frac{3}{16}$ " $1\frac{1}{4}$.70	$\frac{1}{1}\frac{5}{6}$ " 1	.35

We also finish these Wrenches to following sizes for Standard nuts:

No. 71		$\frac{1}{2}$ and $\frac{1}{3}\frac{9}{2}$		Price, \$0.30
No. 72		11 66 25		.40
No. 73		$\frac{7}{8}$ 66 $\frac{31}{32}$.50
No. 74		$\frac{31}{32}$ " $1\frac{1}{16}$.60
No. 75		$1\frac{1}{16}$ " $1\frac{1}{4}$.70

In ordering finished Wrenches state which sizes are wanted, the regular or Standard SQUARE.



Cut is full size of No. 76 Wrench. Fig. 726.

New line of Double End Wrenches to finish for Standard hexagon, or square nuts. This line of Wrenches are lighter than any before made, and are intended to meet the wants of customers for a light Wrench.

No.	Length Inches.	Thickness of Head. Inches.	For Standard Hex. Nuts for Bolts.	Size of Opening.	Price.	Size of Opening.	Price.
76	$4\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{16}$ and $\frac{1}{4}$	$\frac{3}{8}$ and $\frac{1}{2}$	\$0.30	$\frac{3}{8}$ and $\frac{7}{16}$	\$0.15
77	$5\frac{3}{4}$	9 3 2	5 66 3 16 8	$\frac{19}{32}$ 66 $\frac{11}{16}$.40	$\frac{9}{16}$ 46 $\frac{5}{8}$.20
78	7	5 1 C	3 66 1/2	11 66 7 16 8	.50	$\frac{1}{16}$ 66 $\frac{1}{16}$.25
79	8	$\frac{1}{3}\frac{1}{2}$	76 66 76	25 66 31 32 82	.60	3 4 15 4 16	.30
80	$9\frac{1}{4}$	38	9 6 5 8	$\frac{31}{32}$ " $1\frac{1}{16}$.70	$\frac{7}{8}$ · · 1	.35
81	$10\frac{1}{2}$	$\frac{7}{16}$	5 66 ⁷ / ₈	116 6 176	80	$1\frac{1}{16}$ " $1\frac{5}{16}$.40

15° ANCLE DOUBLE END WRENCHES. DROP FORGED OF STEEL.

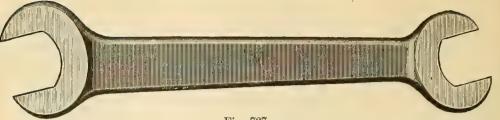


Fig. 727

For United States Standard Nuts for Bolts from 1/8 inch to 21/4 inches diameter, inclusive. All Wrenches, either in forged state or finished, have MILLED OPENINGS.

	Size Bolts,	Milled Openings for	Extreme	Thickness	Price, each, in	Price, each, in
No. of Wrench.	U. S. Standard Nuts.	U. S. Standard	Length.	of Head.	Forged	Finished
		Nuts.		s 3 s	State.	State.
285	$\frac{1}{8}$ and $\frac{3}{16}$ $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{16}$ $\frac{1}{4}$	$\frac{5}{1.6}$ and $\frac{1.3}{3.2}$	3 4	52 and 52 32 3 16 3 16 3 16 1 16	\$0.12	\$0.24
286	8 . 4	$\frac{\frac{5}{16}}{\frac{13}{32}}$ " $\frac{2}{1}$	4	16 16 3	.15	.28 .30
287	3 16 4	16 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	5	1 6 1 6 1 6	.17	.34
283	16 16	32 · · 32 1 · · 19	5	1 " 1	.18	.36
$\frac{289}{290}$	4 1 66 3 TE	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$5\frac{1}{2}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$.20	.40
290 291		10	$5\frac{1}{2}$	9 3 2 4 9 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 3 2 3 3 3 2 3	.21	.42
292	16 6 8 5 6 7	19 6 25 19 6 25	$6\frac{1}{2}$	5 16 16	.23	.46
293	$\frac{16}{3}$ 66 $\frac{16}{7}$	11 (25 16 32	$6\frac{1}{2}$	5 66 5 16 16	.25	.50
294	§ " j"	11 " 7"	7	<u>\$</u> '' <u>\$</u> ''	.30	.60
295	$\frac{7}{16}$ " $\frac{1}{2}$	(6 15 22 1 22 1 22 1 22 2 2 2 2 2 2 2 2 2	7	3 (3 8	.30	.60
296	7 66 9	$\frac{25}{32}$ (6 $\frac{31}{32}$	9	$\frac{7}{16}$ 66 $\frac{7}{16}$,33	.66
297	$\frac{1}{2}$ " $\frac{9}{16}$	$\frac{7}{8}$ " $\frac{31}{32}$	9	5 6 5 6 5 6 6 5 6 6	.35	.70
298	$\frac{1}{2}$ $\frac{5}{8}$	$\frac{7}{8}$ " $1\frac{1}{16}$	$10\frac{1}{2}$	$\frac{1}{2}$ " $\frac{1}{2}$.40	.80
299	$\frac{5}{16}$ " $\frac{5}{8}$	$\frac{31}{32}$ " $1\frac{1}{16}$	$10\frac{1}{2}$	$ \frac{1}{2} $ $ \frac{9}{16} $ $ \frac{6}{16} $ $ \frac{9}{16} $.43	.86
300	9 · · 3 16 · 4	252552 255252 25	12	9 66 9	.45	.90
301	5 (3 8 (7	$1\frac{1}{16}$ " $1\frac{1}{4}$	12	16 16 16 3 T 6	.50	1.00
302	3 1 8 3 1 7	$\frac{1}{16}$ " $\frac{1}{16}$	13	16 4	.58	1 16
303	3 · · · · · · · · · · · · · · · · · · ·	$1\frac{1}{4}$ " $1\frac{7}{16}$	$13\frac{3}{4}$ $14\frac{3}{4}$ $15\frac{3}{4}$	16 9 16 3 16 4 3 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 4 4	.65 $.75$	$\frac{1.30}{1.50}$
304	7 "1	17 "18	153	3 " 3	.79	1.60
305	$\frac{8}{7}$ " $1\frac{1}{8}$	$1\frac{7}{16}$ " $1\frac{3}{16}$	$16\frac{1}{4}$	4 4 4 5 4 5 5	.90	1.80
306 307	$1^{\frac{8}{8}}$ " $1^{\frac{1}{8}}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$17\frac{1}{2}$	3 66 15	1 00	2.00
308	1 "18	18 15 "2"	$18\frac{1}{2}$	3 (6 15	1 12	2.24
309	18 "14	$\frac{18}{118}$ "2	191		1 25	2 50
310	18 "18	$1\frac{13}{16}$ "2 $1\frac{13}{16}$ "2 $2\frac{3}{16}$	$20\frac{3}{2}$	$\frac{15}{16}$ " $\frac{15}{16}$ " $\frac{15}{18}$	1.40	2.80
311	11/4 " 13/8	2 '' 2 3	$21\frac{1}{4}$	15 · · 11 16 · · 11	1.60	3.20
312	$1\frac{1}{4}$ " $1\frac{1}{2}$	$2 `` 2\frac{3}{2}"$	$22\frac{1}{4}$	18 "18	1.80	3.60
313	$1\frac{3}{8}$ " $1\frac{7}{2}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	a a 7	$1\frac{1}{8}$ " $1\frac{7}{8}$	2 00	4 00
314	1\frac{3}{8} \cdot \cdot 1\frac{5}{8}	$2\frac{3}{16}$ · $2\frac{9}{16}$	$24\frac{1}{4}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2.25	4.50
315	12 " 18	$2\frac{3}{8}$ " $2\frac{9}{16}$	25	$1\frac{1}{8}$ " $1\frac{3}{16}$	2 50	5 00
316	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$2\frac{3}{8}$ " $2\frac{3}{4}$ "	26	$1\frac{1}{8}$ " $1\frac{3}{16}$	2 75	5.50
317	15 ' 1 4	$2\frac{9}{16}$ $(2\frac{3}{4}$ $2\frac{9}{4}$ $(2\frac{15}{4}$	27	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3 00	6.00
318	13 44 7	1 0	28	$\frac{13}{16}$ " $\frac{3}{8}$	3.25	6.50
319	13 ((3)	$2\frac{3}{4}$ " $2\frac{15}{16}$ $2\frac{3}{4}$ " $3\frac{1}{8}$	29 30	$1\frac{3}{16}$ '' $1\frac{3}{8}$ $1\frac{3}{16}$ '' $1\frac{3}{8}$	3.50	7.00
320	125 ** 124 125 ** 178 124 ** 2 125 ** 2 125 ** 2	อร์ธ (เคโ	31	$1\frac{3}{16}$ ' $1\frac{3}{8}$	4.00	8.00
$\begin{array}{c} 321 \\ 322 \end{array}$	18 %	$2\frac{16}{16}$ $\frac{38}{216}$ $\frac{31}{2}$	32	18 18 18 18 18	4.50 5.00	9.00
323	2 " 24 2 " 24	$3\frac{1}{8}$ $3\frac{1}{2}$	33	$ \begin{array}{ccccccccccccccccccccccccccccccccc$	5.75	$10.00 \\ 11.50$
020	~ ~4	08 02	0.0	18 12	0.10	11.50

15° ANCLE SINCLE END WRENCHES.

DROP FORGED OF STEEL.

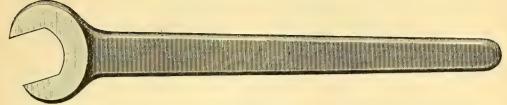


Fig. 728.

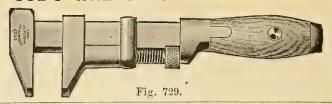
For United States Standard Nuts for Bolts from \(\frac{1}{8} \) inch to 2\(\frac{3}{4} \) inches diameter, inclusive. All Wrenches, either in forged state or finished, have Milled Openings.

No. of Wrench,	Size Bolts. U. S. Standard Nuts.	Milled Openings for U. S. Standard Nuts.	Extreme Length.	Thick- ness of Head.	Price each, in Forged State.	Price, each, in Finished State.
262	<u>\$</u>	1 6	5	5 3 2	\$0.08	\$0.16
263	3.	13	$3\frac{7}{8}$	32	.09	.18
264	$\frac{1}{4}$	1/2	5	1/4	.10	.20
265	छ † त	19 32	$5\frac{5}{8}$	<u>I</u>	.12	.24
266	<u>3</u> 8	116	$6\frac{1}{2}$	1 6	.14	.28
267	1 ⁷ 6	28 5 8 5	$\frac{r_1}{l_2}$	7 g	.17	.34
268	$\frac{1}{2}$	÷	$8\frac{3}{8}$	1,4	.20	.40
269	9 16	3 1 a 3	$9\frac{1}{4}$	र्ग ह	.25	.50
270	<u>5</u> 8	18	10	$\frac{9}{8}$.32	.64
271	.5 .1	1∌	$11\frac{3}{4}$	9 1 g	.40	.80
272	7.	1.37	$13\frac{1}{8}$	$\frac{3}{4}$.50	1.00
273	1	15	$14\frac{7}{8}$	$\frac{3}{4}$.65	1.30
274	1½	118	$16\frac{3}{4}$	1 5 1 6	.85	1.70
275	11	2	$18\frac{1}{2}$	$\frac{1}{1}\frac{6}{2}$	1.10	2.20
276	18	$2\frac{3}{16}$	$20\frac{1}{4}$	$1\frac{1}{8}$	1.40	2.80
277	11	$2\frac{3}{8}$	$22\frac{1}{4}$	$1\frac{1}{8}$	1.75	3,50
278	1 <u>8</u>	$2^{rac{9}{16}}$	25	$1\frac{3}{16}$	2.10	4.20
279	13	$2\frac{3}{4}$	28	1130	2.50	5.00
280	1 ½	2 1 5 2 1 6	31	$1\frac{3}{8}$	3.00	6.00
281	2	3 <u>1</u>	34	$1\frac{3}{8}$	3.50	7.00
282	$\frac{21}{4}$	$3\frac{1}{2}$	37	$1\frac{1}{2}$	4.50	9.00
- 283	2 <u>1</u>	3 7	40	$1\frac{1}{2}$	6 00	12.00
284	$2\frac{3}{4}$	$4\frac{1}{4}$	44	$1\frac{5}{8}$	8.00	16.00

12

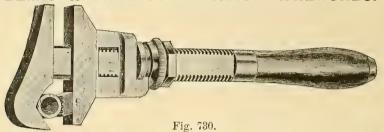
24.00

COE'S WRENCHES. KNIFE HANDLE.



Size	Inches	6	8	10	12	15	18	21
Coe's Black Knife Handle. " Polished Knife Handle.	per doz.			\$12.00 14.00				
P. S. & W. Black Solid Handle "Polished Solid Handle	4.	-9.00	10.00	12.00	14.00	24.00	30.00	36.00 38.00

BEMIS & CALL COMBINATION WRENCHES.



Bright, with Long Nut. Bright, with Shor Nut.

 Inch . . . 10
 12
 15
 18
 Inch . . . 10
 12
 15
 18

 Per dozen \$25.25
 28 50
 40.50
 72 00
 Per dozen \$23.00
 26.00
 37.00
 66.00

ALLICATOR WRENCHES.





No. 1. Fig. 731. No. 2. Fig. 732. 2 3 4 5 Twin. \$ to \$\frac{3}{4}\$ to 1 ½ to 1½ ¾ to 1¾ $1\frac{1}{4}$ to 2 2 to 3 를 to 를 $1\frac{1}{2}$ to $2\frac{1}{2}$ to i 21 to 31 Length, inch . . . $5\frac{3}{4}$ 10 16 22 27 10 Per dozen . . . \$4 00 12.00 24.00 36.00 18.00 54.00Pocket Wrenches, 4 inch, per dozen \$3.00



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STILLSON PIPE WRENCH.



Fig. 734.

					x	10 X.						
Length,				Inches	6	8	10	14	18	24	36	48
Takes P	pe f	rom	-	+ +	1/8 to 1/2	1 to 3	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	\frac{1}{2} to 3\frac{1}{2}	1 to 5
Price,				Each	\$2.00	\$2.00	\$2.25	\$3.00	\$4.00	\$6.00	\$12.00	\$18.00
Jaws,				4.4	.67	.67	.75			2.00		
Frames,				4.6	.25	.25	.33	45	.55	.65	.75	1.00
Nuts,					.20	.20	.27	.35	.42	.50	.65	.80

TRIMO PIPE WRENCH.

Length, Takes P				Inches	6 ½ to ½	$\frac{8}{18} \text{ to } \frac{3}{4}$	10 1 to 1	$\frac{14}{\frac{1}{4} \text{ to } 1\frac{1}{2}}$	$\begin{array}{c} 18 \\ \frac{1}{4} \text{ to } 2 \end{array}$	$\frac{24}{\frac{1}{4} ext{ to } 2\frac{1}{2}}$	$\frac{36}{\frac{1}{2} \text{ to } 3\frac{1}{2}}$	48 1 to 5
Price,					\$2.00	W				\$6.00		
Jaws,					.67	.67	.75	1.00	1.33	2.00		
Nuts,				4.	.20	.20	.27	.35	.42	.50	.65	.80
Inserted	Jaws				.25	.25	.33	.50	.55	.65	1.00	1.25
Frames.			~	4.6	.25	[25]	.33	.45	.55	.65	.75	1.00

SAUNDERS' ONE-WHEEL AND ROLLER PIPE-CUTTER.



Fig. 735.

		All its	parts	can	be d	luplica	ited,
No. 1 cuts pipe 1	to 1 inch inch	usive,					

\$3.00

6.6	2	66	Ĭ	to 2	6.6									4.50
4.6	3	5.5	2	to 3	((11.00
	4	6 -	21	to 4	1.4							•		18.00
						Cutter Wheels.	Bloc	ek an	d W	heel.	Rolle	rs.		Pins.
No.	. 1,					24 cts.		\$1			24 ct	s.		10 cts.
_						35		1	.75		32 '			10 "
	3.					60 ''		2	.75		50 '			15 "
	4.					60		9	.50		50 '	. 6		15 "

SAUNDERS' PATENT THREE-WHEEL PIPE-CUTTER.



Юj	g.	7	3	б	

No.	1 cut	ts pine	1	to	1 i	nch,								\$3.00
6.6	2	11	î	to	2	6.6								4.50
		h 4					2		0		0	•		11.00
6.6	4	h 6	91	to	4	6.6							0	18.00

Price of parts same as the one-wheel Cutter above.

BARNES' THREE-WHEEL PIPE CUTTER.



Fig. 737.

COMMON PIPE TONGS.

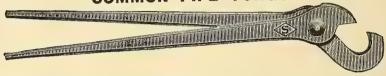


Fig. 738.

Size, inches . $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 5 Price, each . .60 .65 .70 .75 .90 1.10 1.30 1.50 1.90 2.50 4.25 5.25 6.25 8.00

BROWN'S EXTENSION PIPE TONCS.

THE BURNET COMPANY. REW. TO



Fig. 739.

2 3 1 1 Number . 1 to 11 1 to 2 11 to 3 21 to 4 3 to 5 4 to 7 Takes pipe from, ins. ½ to 3/4 3 to 1 25.00 35.00 2.00 3.00 6.00 $1\bar{1}.00$ 1.65 \$1.30 Price, each

CAS PIPE AND BURNER PLYERS

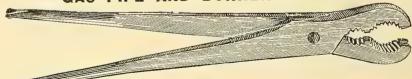


Fig. 740.

		BU	RNER	PLY	ERS.		CAS PLYERS.									
	A 11	brigl	ht.		Pe	er doz.			Per doz.							
5 in			steel			\$6.00	8 in. l	long,	solid	steel			\$9.25			
9 111.	10115,	DOILG	BECKI				9 in.	"	66	6.6			10.25			
6 in.	66	66	4.6			7.00	10 in.	6.6	4.6	. 6			12.50			
о ш.				·		,	12 in.	6.6	6.6	66			14.50			
7 in.	66	66	66		٠	8.00	14 in.	66	١ 6	4.4		•	16.50			

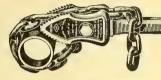
CHAMPION CHAIN PIPE WRENCH.



Fig. 741.

THE VULCAN PATENT DROP-FORGED CHAIN PIPE WRENCH.

For Gripping, Turning or Holding Pipe, Bolts, Bars, Shafts, etc., from \(\frac{1}{8} \) to 18 Inches Diameter.



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Fig. 742. With Cable Chain.



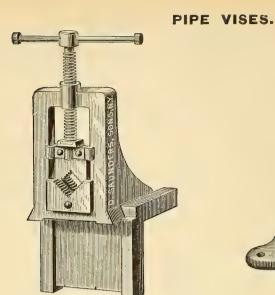
Fig. 743. With Flat Link Chain.

Size	No. 10	No 11.	No. 12.	No. 13.	No. 13½.	No. 14	No. 15.	No. 16.
Price, with flat link chain, each	\$2.50	3.50	5.00	7,00	9,60	11,00	18.00	40.00
Price, with cable chain, each	\$2,25	3.25	4.50	6.25	7.75	9.50	16.00	40.00
Capacity, size pipe	to in.	$\frac{1}{8}$ to $1\frac{1}{2}$ in.	$\frac{1}{4}$ to $2\frac{1}{2}$ in.	\$ to 4 in.	1 to 6 in.	11 to 8 in.	2 to 12 in.	4 to 18 in.
Length, over all	13% in.	20 in.	27 in.	37 in.	44½ in.	50½ in.	64½ in.	87 in.
Weight	1å lbs.	44 lbs.	8å lbs.	16 lbs.	21 lbs.	29 lbs.	49 lbs.	130 lbs.
Extra flat link chain, each	\$.75	1.00	1.50	2.50	3.25	4,00	6.00	13.00
Extra cable chain, each	\$.50	.75	1.00	1.75	2.00	2.50	4,00	13.00
Extra jaws, pair	\$1.00	1.75	2.75	4.00	4.75	5,50	7,50	16.00
Length, flat link chain	9½ in.	13½ in.	17½ in.	$22\frac{1}{2}$ in.	31 in.	39 in.	541 in.	741 in.
Length, cable chain	94 in.	14½ in.	18 in.	27 in.	33½ in.	42 in.	57 in.	76 in.
Breaking strain, flat link chain	3 000 lbs.	5,500 lbs.	9,500 lbs.	11,000 lbs.	13,000 lbs	15,000 lbs.	20,000 lbs.	40,000 lbs.
Breaking strain, cable chain	1,200 lbs.	4,000 lbs.	6,000 lbs.	10,500 lbs.	12,500 lbs.	15,000 lbs.	19,000 lbs.	40,000 lbs.
Size iron in cable chain	3-16 in.	9-32 lbs.	11-32 in.	7-16 in.	15-32 in.	33-64 in.	37-64 in.	13-16 in.

No. 16 has ring on end of handle for use with tackle. All parts are interchangeable; repairs can always be had.

ROBBIN'S CHAIN PIPE WRENCH.

Nos			2	3	4	5	6
Length of Lever, feet			23	3	4	5	6
Takes Pipe from (inches)			1 to 2	14 to 4	2 to 6	$2\frac{1}{2}$ to 8	4 to 10
Price			\$5.50	6.25	9.00	12.50	16.00





PIPE VISE WITH ANGLE PLATE.

No. 1. To nota pipe	nom	हे	10		
ınches diameter					\$12.00
No. 2. To hold pipe	from	$\frac{1}{2}$	to	3	
inches diameter		٠.			16.00

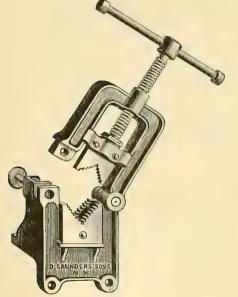


Fig. 746.

MALLEABLE IRON IMPROVED HINGE OR OPEN JAW PIPE VISE.

OR OPEN JAW PIPE VISE.									
No. 1.	Holds	1 to 2 in	Price,	\$10.00					
No. 2.	66	1 to 3 in	66	13.00					
No. 3.	66	$\frac{1}{2}$ to 4 in	66	24.00					
No. 4.	66	2 to 6 in	6.6	30.00					
No. 5.	6.6	$2\frac{1}{2}$ to 8 in.	66	45.00					

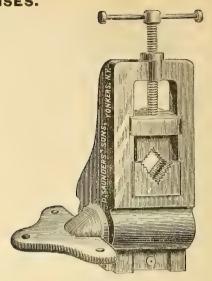


Fig. 745.

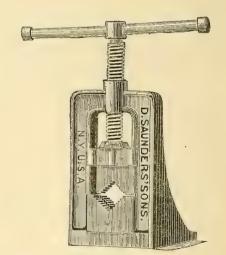
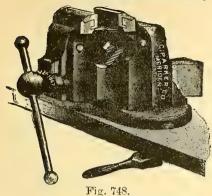


Fig. 747.
MALLEABLE IRON PIPE VISES.

	Holds pipe.	Weight.	Price.
No. 1	$\frac{1}{8}$ to 2 in.	15 lbs.	\$8.00
No. 2	$\frac{1}{4}$ to 3 in.	30 lbs.	12.00

PARKER'S PATENT COMBINATION PIPE VISES.



No. 87. Round and Pipers' Jaws, weight 41 lbs. For holding 2 inch pipe and under. Length of Jaws, $3\frac{5}{5}$ inches . Each, \$16.00

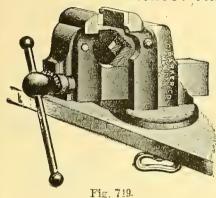
No. 88. Round and Pipers' Jaws, weight 59 lbs. For holding 3 inch pipe and under. Length of Jaws, 4\frac{1}{3} inches. Each, \\$20.00

No. $288\frac{1}{2}$. Round and Pipers' Jaws, weight 105 lbs. For holding 4 inch pipe and under. Length of Jaws, $4\frac{3}{4}$ inches Each, \$28.00

No. 289]. Round and Pipers' Jaws, weight 155 lbs. For holding 6 inch pipe and under. Length of Jaws, $5\frac{3}{8}$ inches . Each, \$35.00

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

WITHOUT PARKER'S IMPROVEMENTS.



KENT COSTABLY

6

SWIVEL BOTTOM.

No.187. Round and Pipers' Jaws, weight 41 lbs. For holding 2 inch pipe and under Each, \$16.00

No. 188. Round and Pipers' Jaws, weight 59 lbs. For holding 3 inch pipe and under Each, \$20.00

No. 188½. Round and Pipers' Jaws, weight 94 lbs. For holding 4 inch pipe and under. Length of Jaws, 4¾ inches. Each, \$28 00

No. 189½. Round and Pipers' Jaws, weight 141 lbs. For holding 6 inch pipe and under. Length of Jaws, 5\frac{3}{8} inches . . . Each, \$35.00

The Steel Faces of these Vises are welded on, and not fitted and renewable as on Nos. 288\frac{1}{2} and 289\frac{1}{3}.

PARKER'S PATENT VISES. WITH INTERCHANGEABLE JAWS.

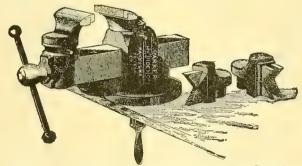
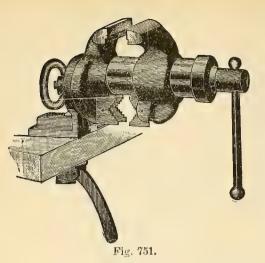


Fig. 750. Above illustration shows No. 86 Vise Complete. Same as illustration, but with Round Jaws only Each, \$12.50 No. 81. Both Jaws Swivel. Weight, 60 lbs. Same as illustration, but with Pipers' Jaws only Each, 12.50 No. 82. Both Jaws Swivel. Weight, 63 lbs. Each, 14.75 No. 86. See illustration Both Jaws Swivel. Weight, 76 lbs. Same as illustration, and has Coach Makers' Jaws in addition to No. 83. Each, 16.00 Round and Pipers' Jaws Both Jaws Swivel. Weight, 91 lbs.



PIPE AND METAL WORKERS' VISE.

No. 102. Universal Combination Pipe and Metal Workers' Vise, 3-inch length of jaw, opens $4\frac{1}{4}$ inches, and will take pipe from $\frac{3}{8}$ to 2 inches in diameter; weight, 52 lbs. Price, \$12.00.

No. 103. $4\frac{1}{2}$ -inch length of jaw, opens $4\frac{1}{4}$ inches and will take pipe from $\frac{3}{8}$ to 3 inches in diameter; weight, 80 lbs. Price, \$15.00.

PARALLEL BENCH VISE.

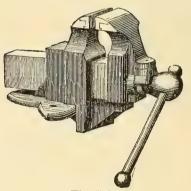


Fig. 752.

	FIXED.					SWIVEL.							
No.	Length of Jaw.	Weight.					No.	Length of Jaw.	Weight.				
0	3 inches	$25\frac{1}{2} \text{ lbs.}$	0			\$5.50	00	2 inches	$7\frac{1}{2} \text{ lbs.}$				\$4.00
1	31 "	31 § "				6.50	0	3 4	$31\frac{1}{2}$ "				6.25
2	4	41 "				8.50	1	31/4	$38\frac{1}{2}$				8.00
3	43	521 "				10.75	2	4 "	48 ''				10.00
4	5 ''	93 "				16.00	3	$4\frac{1}{2}$	61				13.25
5	6	113} ''	0			23.75	4	5 "	1041 "				18.50
6	7	184 "				34.50	5	6 "	129				26.00
							6	7 66	194				36.00

Fig. 753. NEW STYLE CHANNEL BAR BENCH VISE.

	F	FIXED.	1	S	WIVEL.		
No.	Length of Jaw.	Weight,	Ne	Length of Jaw.	Weight		
20	2 inches	7 lbs	\$4.90 20	2 inches	8 lbs		\$4.50
25	$2\frac{1}{2}$	12 "	5.00 25	$2\frac{1}{2}$ \cdots	13 " .		5.75
30	3	$21\frac{1}{2}$ "	6.25 30	3 ,	24 " .		7.00
35	31 11	$30\frac{7}{5}$ "	7.00 35	31 11	34 " .		8.25
40	4 "	$46\frac{1}{2}$ "	9.00 40	4 "	50 " .		10.75
45	41 "	58	11.75 45	45 66	63 '' .		14.00
50	5	88 66	16.25 50	5	96 " .		19.25
55	5½ "	110½ "	20.00 55	51 44	$118\frac{1}{2}$ ".	٠ .	23.50

PRICE LIST OF REPAIRS FOR PARKER VISES.

No. of Vice.	Slide.	Back Jaw.	Screw.	Spring.	Nut.	Steel Jaws Each.	Bench 1 olt.	Bench	Swivel Pin.	Swivel Nut.	Swivel Bo t.	Bolt.	Rench	Bench Flange.	Bench Nut.	Bench Swivel.
A B C C D D E E F F G G AA A B B C C D D X X X X X X X X X X X X X X X X	1.25 1.25 1.50 1.75 2.50 3.50 5.50 1.25 1.50 3.50 2.50 3.50 2.50 3.50 6.00 10.75 2.00 3.75 6.75 1.25 1.55 1.25 1.25 1.25 1.25 1.25 1.2	1.50 1.75 2.00 2.50 3.50 4.50 6.50 1.50 1.75 3.50 4.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 3.50 6.50 6.50 6.50 6.50 6.50 6.50 6.50 6	1.50 1.50 1.50 2.00 1.50 1.50 1.50 2.00 2.00 1.50 2.00 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1	35 35 35 35 35 35 35 35 35 35 35 35 35 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	50 50 50 50 50 65 50 50 50 50 50 50 50 50 50 50 50 50 50	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 25 25 25 25 25 25 25 25 25 25 25 25 2	25 25 25 25 25 25 25 25	25 25 25 50 50	25 25 25 50 50	25 25 25 50 50	25 25 25 25 35 35 35 35 25 25 25 25 25 25 25 25 25	25 30 50 50 50 50 50 50 50 50 50 50 50 50 50	25 25 25 35 35 35 25 25 25 25 25 25 25 25 25 25 25 25 25	1.00 1.00 1.00 1.30 1.25

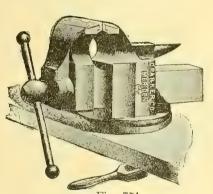


Fig. 754.

PARKER'S PATENT PARALLEL SWIVEL VISES.

Parker's Patent Cast-steel Anvil.

Round Jaws. Swivel.

No.	Weight.	Length of Jaws.	Each.
19	8 lbs.	2 Inches	\$4.00
20	$8\frac{1}{2} \log_*$	$2\frac{1}{4}$ inches	5.00
21	23 lbs.	$3\frac{1}{8}$ inches	7.00
22	35 lbs.	$3\frac{\epsilon}{8}$ inches	8.75

PARKER'S PATENT FILERS' VISES.

No. 42.	Length	of	Jaws,	4 :	inches.	V	Veight,	33	lbs.
	Each				1				\$7.25
	Length								
	Each								\$6.75
SWIVEL FILERS' VISE.									

No. 44.	Length	of	Jaws,	4	inches.	W	eight,	37	lba,
	Each			•		•	٠	٠	\$8.70

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.



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PARKER'S PATENT PARALLEL VISES.

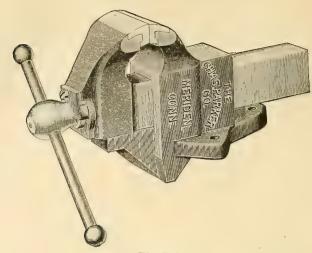


Fig. 756.

No.

Weight.	Length of Jaws.	∜ise Opens.	Price Each.
28 lbs.	31 inches	$4\frac{1}{4}$ inches	\$6.25
45	3 <u>3</u> "	5 ફે ''	7.00
58	41 4	$6\frac{1}{2}$ "	9.00
74	43 44	81 "	11.75
104 "	51 44	91 "	16 25
134 ''	$6\frac{1}{4}$ "	$10\frac{1}{2}$ "	24.00

PARKER'S PATENT SWIVEL VISES.

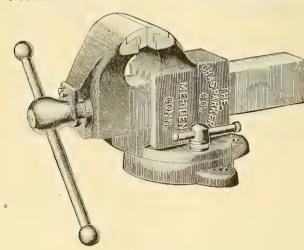
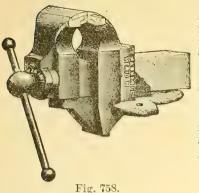


Fig. 757.

No.	Weight.	Length of Jaws.	Vise Opens.	Price Fach.
21X.	32 lbs.	$3\frac{1}{4}$ inches	$4\frac{1}{4}$ inches	\$7.00
22X.	50 ''	33 4	5} "	8.75
23X.	65 ''	41 "	$6\frac{1}{2}$ "	11.00
24X.	87 "	43/4 11	$8\frac{1}{4}$	14.50
25X.	130 "	$5rac{1}{2}$ "	91/2	20.50
26X.	160 "	$6\frac{1}{4}$ ···	$10\frac{7}{2}$	30.00

The steel faces of these Vises are milled and fitted to the Jaws, and are renewable at a small cost.

PARKER'S PARALLEL VISES, WITHOUT PARKER'S IMPROVEMENTS.



ket, with the exception of Parker's first quality. For the purchaser's protection, these Vises are pointed green so they can be easily distinguished from the regular Vises.

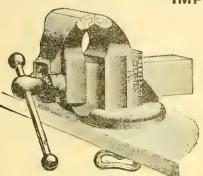
No. Length of Jaws. Weight. Each.

They are equal in strength to any Vise in mar-

No.	Length of Jaws.	Weight.	Each.
0000	$3\frac{1}{4}$ inches	23 Ībs.	\$5.50
100	3 <u>ફે</u> "	$31\frac{1}{2}$ "	6.50
200	$4\frac{1}{8}$ "	$41\frac{1}{2}$ "	8.50
300	48 66	59 <u>\$</u> ''	10.75
400	5 3 "	83 "	16.00
500	$6\frac{\circ}{8}$	120 "	23 75
	O .		

The Steel Faces of these Vises are Milled and fitted to the Jaws and are renewable at a trifling cost.

PARKER'S SWIVEL VISES, WITHOUT PARKER'S IMPROVEMENTS.

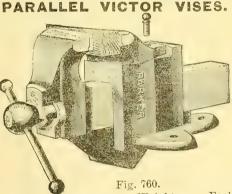


PARKERS

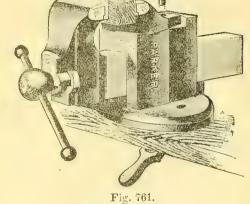
No.	Length of Jaws.	Weight.	Each.
2000	$2\frac{1}{4}$ inches	$8\frac{1}{2} \text{ lbs.}$	\$4.00
2100	$3 ilde{ ilde{s}}$ "	23 "	6.25
2200	$3\frac{5}{8}$ "	35 ''	8.00
2300	41 "	48 "	10.00
2400	43 "	$63\frac{1}{2}$ "	13.25

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a triffing cost.

PARKER'S PATENT SWIVEL VICTOR VISES.



PATENT



	1	15. 1001				TYT I I	Б. 3
No.	Length of Jaws.	Weight.	Each.	No.	Length of Jaws.	Weight.	Each.
TAO.			60.0 741	270	$3\frac{1}{4}$ inches	30 lbs.	\$7.00
370	$\frac{31}{4}$ inches	25 lbs.	\$ 6,50	210	o ₄ menes	00 105.	\$1.00
			19 00	271	3 5 "	42 "	8.50
371	35 "	39 "	7.00	RIL	9.8		
		57 66	10.00	272	45 66	60 46	12.50
372	45 "	57	10.00	212	_		
		73 "	14.00	273	5 "	78	16.00
373	5 "	75	14.00				
	×1 (/	98 "	17.00	274	53 "	110 "	19.00
571	5\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	90	11.00		"	*	
	4 .	150 ''	24 00	275	$6\frac{1}{4}$ "	165 "	27.00
375	$6\frac{1}{4}$ "	190	WI OO	~ 10	- 4 <u>-</u>		

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

PRENTISS' PATENT SELF-ADJUSTING JAW VISES.

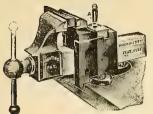


Fig. 762.

No.	Width Jaw.	Opens.	Weight.	List Price.
1	$2\frac{5}{8}$ in.	31 in,	$13\frac{1}{2} \text{ lbs.}$	\$5.50
$ar{2}$	$3\frac{1}{2}$ "	$\frac{3\frac{1}{2} \text{ in,}}{4\frac{3}{4}}$ "	28 "	7.00
$2\frac{1}{5}$	4 "	54 "	41 ''	9.00
$\frac{2\frac{1}{2}}{3}$	41 66	6 "	54 ''	10.50
4	$5\frac{1}{4}$ "	8 "	96 "	17.00
5	6 "	9 "	146 "	24.00
6	7 66	11 "	184 "	30.00

MACHINISTS' STATIONARY BOTTOM VISES.

MACHINISTS' PATENT SWIVEL BOTTOM VISES



Fig. 763.

MAC	HINGIS I A			
No.	Width Jaw.	Opens.	Weight.	List Price.
18	$2\frac{5}{8}$ in.	$3\frac{1}{2}$ in.	17 lbs.	\$6.75
19	$3\frac{3}{2}$ "	$4\frac{5}{4}$ "	32 ''	8.50
$19\frac{1}{2}$	4 "	$5\frac{7}{4}$ "	46 ''	10,50
20	$4\frac{1}{2}$ "	6	65 ''	12.50
21	$5\frac{1}{4}$ "	8 "	109 "	19.00
22	6	9 "	168 "	27.00
23	17 66	11 ''	207 ''	35.00

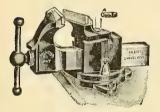
FILERS' STATIONARY BOTTOM VISE.



Fig. 764.

No.	Width Jaw.	Opens.	Weight.	List Price.
42	$4\frac{1}{4}$ in.	5_4^1 in.	42 lbs.	\$8.00

Rough-cut or smooth jaws, as ordered.



No.

47

Fig 765

FILERS' PATENT SWIVEL BOTTOM VISE.

Width Jaw.	Opens.	Weight.	List Price.
$4\frac{1}{4}$ in.	$5\frac{1}{4}$ in.	47 lbs.	\$10.00

Rough-cut or smooth jaws, as ordered.

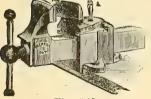


Fig 766.

COACH-MAKERS' STATIONARY BOTTOM VISE.

No.	Width Jaw.	Opens.	Weight.	List Price.
12	$3\frac{1}{2}$ in.	7 in.	30 lbs.	\$8.00
10	$4\frac{1}{2}$ "	91 "	59 ''	11.00

Jaws are finished perfectly smooth

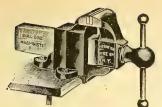


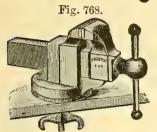
Fig. 767.

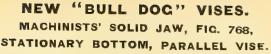
COACH-MAKERS' PATENT SWIVEL BOTTOM VISE.

No.	Width Jaw.	Opens.	Weight.	List Price.
27	$3\frac{1}{2}$ in	7 in.	34 lbs.	\$9.50
26	$4rac{ ilde{1}}{2}$ "	$9\frac{1}{2}$ "	67 "	13.00

Jaws are finished perfectly smooth.







No.	Width Jaw.	Opens.	Weight.	Price.
50	$3\frac{1}{4}$ in.	4 in.	22 lbs.	\$6.00
51	$3\frac{5}{8}$ "	5 "	28 ''	7.00
52	$4\frac{1}{8}$ "	$5\frac{1}{2}$ "	42 "	8.50
53	$4\frac{5}{8}$ "	$6\frac{1}{4}$ "	52 "	10.00
54	5 "	7	72 "	13.00
55	$5\frac{1}{2}$ "	$8\frac{1}{2}$ "	100 ''	18.50
56	6 "	$9\frac{1}{2}$ "	135 ''	25.00

MACHINISTS' SOLID JAW. FIG. 769, SWIVEL BOTTOM, PARALLEL VISE.

No.	Width Jaw.	Opens.	Weight.	Price.
90	$3\frac{1}{4}$ in.	4 in.	28 lbs	\$7.50
91	3 <u>5</u> ''	5 "	36 ''	8.75
92	$4\frac{1}{8}$ "	$5\frac{1}{2}$ "	52 ''	10.50
93	$4\frac{5}{8}$ "	64 "	64 "	12.50
94	5 "	7 66	85 "	16.00
95	$5\frac{1}{2}$ "	$8\frac{1}{2}$ "	115 "	22.00
96	6 "	91	155 ''	30.00

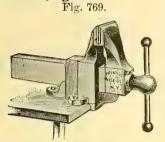


Fig. 770. COACH-MAKERS' SOLID STATIONARY BOTTOM, PARALLEL VISE.

No.

59

Opens. Weight. Price. 9 in. 48 Ibs. \$9.50

JAW. FIG. 770.

Fig. 771.

COACH-MAKERS' SOLID JAW, FIG. 771, SWIVEL BOTTOM, PARALLEL VISE.

Width Jaw. No. Opens. Weight. Price. 99 41 in. 9 in. 58 lbs. \$11.50

NEW STEEL (CHANNEL) BAR FILERS' VISES.

Width Jaw.

 $4\frac{1}{4}$ in.

The Wrought Steel (Channel) Sliding Bar renders it possible to construct this Vise with the Highest Jaws and Largest Throat Opening of any Vise ever before offered, thus holding the largest work. Rough-cut or Smooth Jaws, as ordered.

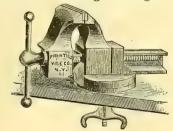
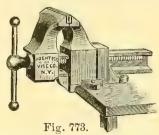


Fig. 772.

SWIVEL BOTTOM FILERS' VISE. No. Width Jaw. Opens. Weight. Price. 48 6 in. 45 lb. \$8,00 4 in.



STATIONARY BOTTOM FILERS' VISE. No. Width Jaw. Opens. Weight. Price. 4 in. 37 lbs. 43 6 in.

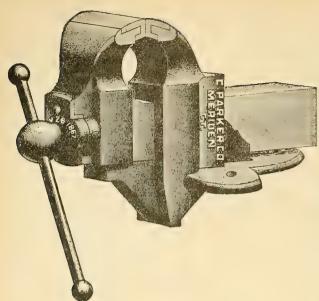


Fig. 774.

Fig. 775.

PRENTISS' HEAVY CHIPPING VISE.

This is the Largest and Heaviest Vise in the market, for use by Railroad and Machine Shops, Foundries, Glass Works, Mills and large Manufactories.

No. 58. $8\frac{1}{2}$ inch Jaws. Opens 12 inches.

Weight, 275 lbs. Price, \$50.00.

Swivel Bottom Attachment for this Vise, \$5.00 extra.

PARKER'S HEAVY RAILWAY VISE.

This vise is specially adapted for use by Railways and Machine Shops; requiring a trusty tool for heavy work.

STATIONARY BOTTOM.

No. 600. Length of Jaws, $8\frac{1}{8}$ inches; Weight, 240 lbs.; each, \$\$45.00.

SWIVEL BOTTOM.

No. 160. Length of Jaws, $8\frac{1}{8}$ inches; Weight, 250 lbs.; each, \$50 00. Opens $12\frac{1}{7}$ inches.

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

PARKER'S PATENT PARALLEL VICTOR VISES.

FOR EXTRA HEAVY WORK.

For use of Railroads, Machine Shops, Car Builders, etc.

STATIONARY BOTTOM SWIVEL BACK JAWS.

No. 340. Length of Jaws, $7\frac{1}{2}$ inches; Weight, 185 lbs.; each, \$30.00.

SWIVEL BOTTOM SWIVEL BACK JAWS.

No. 240. Length of Jaws, 7½ inches; Weight, 200 lbs.; each, \$35.00. Opens 12 inches.

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

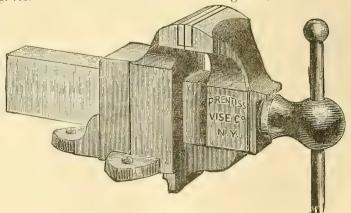


Fig. 776.

VULCAN VISES.

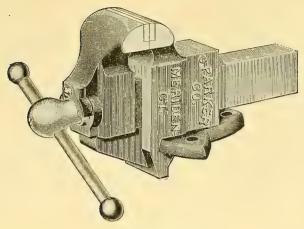


Fig. 777.

SOLID STEEL FACED JAWS, EXTRA STRONG SLIDE AND SCREW.

Designed to supply the requirements for a Strong, Durable, Medium Priced Vise.

PA.	TENT	PARALLEL	STATIO	DNARY	PA	TENT F	PARALLE	L SWIV	EL
		VISES.				,	VISES.		
No	Weight.	Vise Opens.	Length of Jaws.	Each.	No.	Weight	Vise Opens.	Length of Jaws	Each.
A.	25 lbs	$4\frac{1}{2}$ in.	$3\frac{1}{4}$ in.	\$6.00	A. A.	28 lbs.	$4\frac{1}{2}$ in.	$3\frac{1}{4}$ in.	\$7.50
В:	28 "	5 ''	$3\frac{5}{8}$ "	7.00	B. B.	37 "	5 "	35 4	8.75
C.	46 "	$5\frac{1}{2}$ "	41/8 "	8.50	C. C.	$52\frac{1}{2}$ "	$5\frac{1}{2}$ "	4 1 /8 "	10.50
D.	60 "'	$6\frac{1}{2}$ "	45 "	10.00	D. D.	66 ''	$6\frac{1}{2}$ "	45 "	12 50
E.	74 "	7	5 "	13.00	E. E.	86 ''	7	5 ''	16.00
F.	100 "	81 "	$5\frac{1}{2}$ "	18.50	F. F.	115 ''	$8\frac{1}{2}$ "	$5\frac{1}{2}$ "	22.00
G.	135 "	91 "	6 "	25.00	G. G.	156 "	$9\frac{1}{2}$ ".	6 "	30 00

PARKER'S OVAL SLIDE VISES.

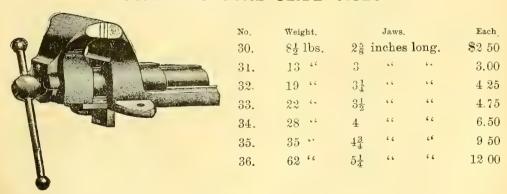


Fig. 778.

DOUBLE SCREW PARALLEL LEG VISE.



Fully Warranted against Breakage of any part, and of such superior material and construction that constant use for years will not produce any appreciable wear. The cut fully illustrates its action. It is really the old-fashioned Leg Vise, but made Parallel by causing the lower end of the front jaw to have the same movement in and out with the upper part, instead of opening on a hinge, thus always bringing a Square Pull on the Thread of the back jaw, solid and immovable.

Fig. 779.	Fi	œ.	779.
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No.	Weight about	Jaws.	Screws.	Lever.	Opens.	Price.
*2	65 lbs.	$4\frac{1}{2}$ in. x 1 in.	$1\frac{1}{8}$ in. diam.	13 in. long.	$5\frac{1}{2}$ in.	\$10.50
3	90 ''	$5\frac{1}{4}$ " " $1\frac{1}{8}$ in.	$1\frac{1}{4}$ "	16 " "	$6\frac{1}{2}$ "	16.00
4	120 ''	$6\frac{1}{4}$ " " $1\frac{1}{4}$ in.	$1\frac{1}{2}$ "	19 " "	$7\frac{7}{2}$ "	20.50
5	150 "	$7^{"}$ " " $1\frac{1}{2}$ in.	$1\frac{3}{4}$ "	24 " "	9 "	27.00
6	160 "	8 "" $1\frac{1}{2}$ in.	13 " "	26 " " .	10 "	30.00
	WAT	T P NT O'		1.7 0	2.1. 7	

*Note.—Leg for No. 2 is unnecessary, therefore omitted.

PATENT SOLID BOX LEG VISES.

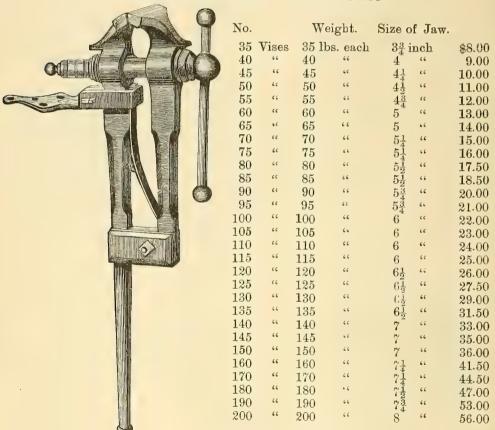


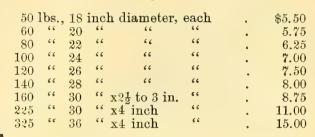
Fig. 780
WITH SWIVEL ATTACHMENT.

List same as regular S. B. Vises, adding \$1.00 net on each Vise for Swivel attachment.

CRINDSTONES MOUNTED ON WOOD FRAMES.

SPECIAL.

Mounted on Heavy Hardwood Frames.



Knocked down for export when required.

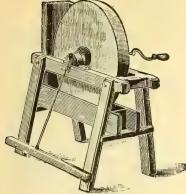


Fig 781.

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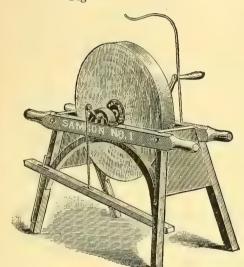


Fig. 782.

THE SAMSON.

Mounted with Specially Selected Stone.

PRICE PER DOZ.

No.	3,	Weight	40	to	50	lbs.	\$54.00
66	2,	66	70	to	80	66	60.00
"	1,	66	100	to	110) "	72.00

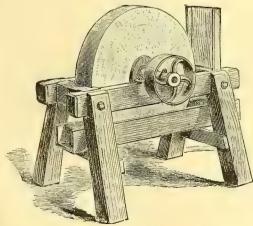


Fig. 783.

HEAVY WOOD FRAME FOR POWER.

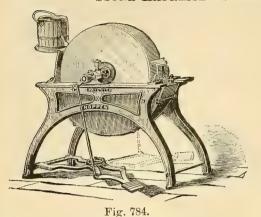
24 inch			\$14.00
30 "		•	20.00
36 "			28.00

221

MACHINISTS' CRINDSTONES.

MOUNTED ON IRON FRAMES.

STONE EXPRESSLY SELECTED AND WARRANTED.



25 inch, \$14.00. Shield and Water Bucket, \$1.50 extra.

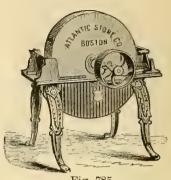


Fig. 785. 30 inch Light, **\$22.50.**

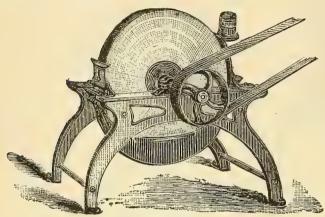


Fig. 786.

30 inch Heavy, \$26.00; 36 inch Heavy,

6 inch Heavy \$40.00.

Shield and Water Bucket, \$2.00 extra.

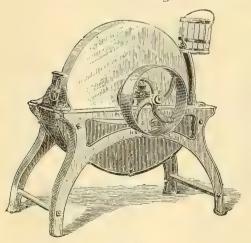


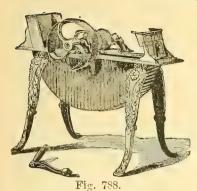
Fig. 787.

36 Inch Heavy,

\$40,00.

PATENT POWER CRINDSTONE FRAME.

Arranged with Pulley for Power.



0

20

- T - In -

With pulley for power, to swing stone $30x4\frac{1}{2}$ in. Price, \$15.00.

Arranged with pulley and treadle for power and foot.

Price, \$16.00,

For size to swing stone 48x6 in., with pulley for power. Price, \$50.00.

HAND OR FOOT CRINDSTONE FRAME.



Fig. 789.

The cut shows Fig. 789 without the pulley for power and with foot treadle and handle, adapting it for use either by pedal or manual power. We can recommend this Frame as far ahead of the wooden article which, where durability and true economy is a factor, it is fast superseding.

Fig. 789, Patent Cast-Iron Grindstone Frame, arranged to be worked by hand or foot. Suitable to swing 30x4½ in. stone.

Price, \$12 00

PATENT CRINDSTONE SHAFT.

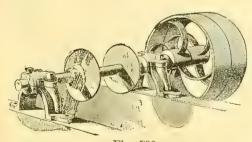


Fig. 790.

Fig. 790 shows Patent Grindstone Shaft, to be driven by power, with flanges, nuts, screws, and fast and loose pulleys. The flanges are adjustable to fit any thickness of stone.

PRICES.

for Stone. 36x4 inch. 48x6 " 48x8 "	Diameter of Pulleys. 12 inch. 12 '' 12 ''	Face. 3 inch. 3 '' 3 ''	As shown in Cut, with two Pulleys. \$9.00 25.00 35.00	With one Pulley. \$8.00 24.00 34.00
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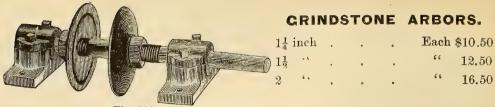


Fig.	791
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GRIND STONES.

FOR MACHINISTS AND MANUFACTURERS.

			ES	cpress	ly Selecte	ed and warranted.				
Independence, p	er lb.				*	Nova Scotia, per lb.				\$
Amherst,	4.6					Newcastle, '				
Berea,	66									
When ordering	nlesse	ctato	for	what	nurnose	the Stone is required :	by s	o doin	or won	will

lget

when ord	ering	prea	ise si	tate 10	r wns		proper		equire	u; by	so doing	you	will get
	1							STO	ONE	s.			
Parter 11	ion S	1	12	inch								Each	\$2.50
			14			Ċ			·			66	2.75
			16	44								66	3.00
	d.	3	1 8	66								"	3.25
Fig	. 792.												
				FLI		SAND P. Sheets 9			BEST.				
Numbers Per ream	:		:		000 t \$5		$\begin{array}{c} 2 \\ 5.50 \end{array}$	$\frac{2\frac{1}{2}}{6.00}$		$\begin{array}{c} 3 \\ 6.50 \end{array}$	$\frac{3\frac{1}{2}}{7.0}$		$\overset{4}{8.00}$
	A 11 N	Tumi	ora l			FLINT S				nor roo	m #4 95		
	All I	(umi	Je is i	,		TRA FL	-		iches,	per rea	ш, фт.г.	•	
777174			**			ls 50 Yar					77 01		
Width . 24 inches		•	N	os. 00 \$ 5.5		No. 2 \$ 6.00		6.50	No. \$ 7.	-	No. 3½ \$ 8.00		No. 4 \$ 9.00
30 "	:			8.0		9.00		0.00	[#] 11.		13.00		15.00
36 "				10.6		11.00	1	2.00	13.	00	15.00		20100
40 ''				12.0		13.00		4.00	15.		17.00		
42		•		13.0		14.00		5.00	16.		18.00		
48		•		15.0	00	17.00		8.00	20.	00	23.00		
				In Ro	olls 14	SAND Inches			Long				
Numbers (00 to 2	, per	roll								1 .		\$12.50
					In	EMERY Sheets, 9							
Numbers						0	0 to 11	2		$2\frac{1}{2}$	3		$3\frac{1}{2}$
Per ream							\$7.00	8.00	:	10.00	12.00)	14.00
						EMERY							
				24	Inche	s Wide a		Yards L	ong.				
Numbers			•) to $1\frac{1}{2}$	2		$2\frac{1}{2}$	3		$3\frac{1}{2}$
Per roll	•	•	٠	•	•		\$7.50	9.00	1	1.00	13.0 0		15.00
						EMERY Sheets, 9	9 x 11 I						
Numbers Per ream		:		$\begin{array}{c} \text{to } 1\frac{1}{2} \\ 0.00 \end{array}$		$\frac{2}{2.00}$	$2\frac{1}{2}$ 26.00	$\frac{3}{28.00}$)	$\frac{3\frac{1}{2}}{30.00}$	C	rocus 20.0	cloth.
						EMERY	CLOT	rH.		2,00		~~~	
Width						Yards Lo							
Width 9 inches	•	•	•	•		Nos. 00 to	2	2	21/2		3		31
9 inches		•	•	•	٠	\$ 7.00		3.00	\$ 9.5		\$11.00		\$13.00
27 "		•	•			14.00		5.00	19.0	J0	22.00		26.00

21.00

24.00

28.50

\$11.00 22.00 33.00

39.00

27 6.6

STUBS' FILES.

(All Hand-Cut,)

SAW	FILES.	TAPER	OR	BLUNT.	SINCLE	OR	DOUBLE	CUT.
~~ TT			O IL	DECIME!	SHIGE	O I	DOODEL	~~.

SAW FILES, TAPER OR BLUNT, SINGLE OR DOUBLE CUT.												
	8 9 10 .20 7.20 8.10											
KNIFE FILES.												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	5 6 3.40 4.25 4.00 4.85 5.00 5.85											
SQUARE FILES.												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 5 & 6 \\ 3.40 & 4.25 \\ 4.00 & 4.90 \\ 5.00 & 5.85 \end{array}$											
TAPER FLAT, PILLAR AND COTTER FILES.												
Smooth '' ' 2.35 2.35 2.90 3.35 4.00 4.85 6.20 6.65 7	9 10 12 3.65 7.50 8.80 7.50 8.80 10.50 8.90 9.75 13.15											
HAND OR POTTANCE FILES.												
Length, inches 3 $3\frac{1}{3}$ 4 $4\frac{1}{2}$ 5 6 7 8 9 Bastard, per dozen	05 7.90 9.65 00 8.80 11.35											
TAPER THREE-SQUARE FILES.												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	05 7.90 9.65 00 8.80 11.35											
ROUND FILES, TAPER.												
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	35 7.50 8.80 35 9 65 12.20											
HALF ROUND, ROUND EDGE JOINT, AND FLAT BACK	HALF											
ROUND FILES. Lenoth inches $2 \text{ to } 2\frac{1}{3} + 3 + \frac{3}{4} + 4 + \frac{1}{3} + 5 + 6 + 8$	10 12											
Length, inches $2 \text{ to } 2\frac{1}{2}$ 3 $\frac{1}{2}$ 1	20 8.35 10.50 05 9.65 12.20											
EQUALLING FILES.												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	80 7.90 9.65 05 8.80 11.35											
WARDING FILES.												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	4.30 4.65											

COMPONY WEN TONK.

LIST OF FILES AND RASPS.

EIGI OF TIEES AND RAS. S.													
LIST ADOPTED MILL AND ROUND. NOVEMBER 18T, 1899.													
Length inches. 4 5 6 7 8 9 10 12 13 14 16 18 20 Bastard, per doz. \$3.00 3.20 3.50 3.90 4.30 4.90 5.60 7.50 9.40 10.70 14.70 20.20 27.40 2d Cut, " 3.50 3.80 4.00 4.60 4.90 5.80 6.40 8.60 10.70 12 20 16.80 22.70 30.70 Smooth, " 3.90 4.10 4.50 4 90 5.40 6.30 7.00 9.40 11.70 13.10 17.90 24.30 32.90 Mill Blunt Dbl. Cut, advance 2 in. Mill Dbl. Cut, advance 1 in. Mill Narrow Point, advance 1 in.													
MILL.													
ONE ROUND EDGE.													
Length, inches. 4 5 6 7 8 9 10 12 13 14 16 18 Bastard, per doz., \$3.40 3.60 3.90 4.40 4.80 5.50 6.30 8.40 10.60 12.00 16.50 22.70 2d Cut, " 3.90 4.30 4.50 5.20 5.50 6.50 7.20 9.70 12.00 13.70 18.90 25.50 Smooth, " 4.40 4.60 5.10 5.50 6.10 7.10 7.90 10.60 13.20 14.70 20.10 27.30													
MILL.													
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$													
FLAT.													
Length, inches. 4 5 6 7 8 9 10 12 13 14 16 18 20 Bastard, per doz., \$3.70 3.90 4.30 4.80 5.30 6.30 7.00 9.70 11.80 13.30 17.80 23.90 31.50 2d Cut, " 4.30 4.60 4.80 5.50 6.10 7.20 8.10 11.00 13.60 15.30 20.10 26.80 35.30 Smooth, " 4.70 4.90 5.30 6.10 6.60 7.90 8.70 12.10 14.70 16.70 22.30 29.20 38.30 Cant (Blunt) Dbl. Cut, advance 2 in.													
SQUARE.													
Length, inches. 4 5 6 7 8 9 10 12 13 14 16 18 20 Bastard, per doz., \$3.80 4.10 4.60 5.10 5.50 6.60 7.40 10.20 12.50 13.90 18.70 25.10 32.80 2d Cut, 4.60 4.80 5.10 5.80 6.30 7.70 8.50 11.50 14.30 16.10 21.20 28.20 36.70 Smooth, 4.90 5.30 5.50 6.30 7.00 8.30 9.10 12.80 15.40 17.50 23.30 30.40 39 30 Square Blunt, advance 1 in.													
HAND AND PILLAR.													
Length, inches. 4 5 6 7 8 9 10 12 13 14 16 18 20 Bastard, per doz., \$3.70 3.90 4.30 4.90 5.40 6.70 7.50 10.70 13.30 15.00 20.10 26.80 35.10 2d Cut, " 4.30 4.70 5.10 5.80 6.30 7.80 8.70 12.30 15.20 17.00 22.80 29.90 39.20 Smooth, " 4.80 5.30 5 60 6.30 6.70 8.30 9.40 13.50 16.20 18.20 24.20 31.50 41.60 Slotting (Blt.), advance 2 in. Cotter Blunt or Taper, advance 2 in.													
HALF ROUND AND THREE SQUARE.													
Length, inches. 4 5 6 7 8 9 10 12 13 14 16 18 20 Bastard, per doz., \$4.80 5.40 6 10 7.00 7.50 8.50 9.10 11.80 14.10 15.50 20.60 27.50 36.20 2d Cut, 560 6.10 6.70 7.70 8.30 9.40 10.10 13.00 15.40 17.00 22.50 29.90 39.40 Smooth, 6.10 6.40 7.10 8.20 8.90 9 90 10.70 13.90 16.60 18.30 24.20 32.00 42.30 Ginsaw, take Bastard price. Crossing, advance 2 in. Feather Edge (Blunt), advance 2 in. Tumbler, advance 2 in.													
WARDING.													
Length, inches. 4 5 6 7 8 9 10 11 12 12 14 Bastard, per doz., 2d Cut, " \$4.00 4.50 4.90 5.90 6.40 7.80 8.70 10.90 12.30 15.20 17.00 Smooth, " 4.80 5.30 5.90 6.90 7.50 9.00 10.10 12.70 14.30 17.40 19.40 Smooth, " 5.40 5.80 6.40 7.50 8.20 9.90 11.00 13.70 15.40 18.70 21.00													
KNIFE.													
Length, inches. Bastard, per doz., 2d Cut, Smooth, Bastard, per doz., 2d Cut, Carrier Substitute 4 5 6 7 8 9 10 11 12 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15													

LIST OF FILES AND RASPS,-CONTINUED.

TAPERS

Length, inches,													
Single Cut, doz.,	\$2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	6.60	8 10	12.50	18.20
Double " "	2.50	2.50	2.90	3.10	3.50	4.00	4.70	5.60	6.70	8.10	9.70	14.70	20.60

SLIM TAPERS.

Length, inches,	3	$3\frac{1}{2}$	4	41	5	$5\frac{1}{2}$	6	7	8	9	10	12	14
Single Cut, doz.,	\$2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	5.40	6.40	9.50	13.80
Double " "	2.50	2.50	2.60	3.00	3.20	3.50	3.90	4.50	5.30	6.30	7.50	11.00	15.40

BANDSAW, BLUNT AND TAPER.

Length, inc	hes, 3	3}	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	7	8	9	10	12	14
Regular, do	z., \$2.5	0 - 2.50	2.90	3.10	3.50	4.00	4.70	5.60	6.70	8.10	9.70	14.70	20.60
Slim	. 2.5	0 - 2.50	2.60	3.00	3.20	3.50	3.90	4.50	5.30	6.30	7.50	11.00	15.40

WOOD FILES.

Length, inches, 6											
Flat, doz., \$4.30	4.80	5.30	6.30	7.00	8.60	9.70	11.80	13.30	16.00	17.80	23.90
Half round, dz. 6.10	7.00	7.50	8.50	9.10	10.70	11.80	14.10	15.50	18.50	20.60	27.50
Cabinet, "8.10	9.30	10.10	12.20	13.70	16.80	18.70	22.40	24.80	29.70	32.9)	43.60

WOOD RASPS.

Length, inches	6	7	8	9	10	11	12	13	14	15	16	18
Flat, doz.,	\$7.40	8.60	9.40	11.40	12.80	15.50	17.50	20.90	23.20	27.80	30.80	40.90
Half round, dz.,	8.10	9.30	10.10	12.20	13.70	16.80	18.70	22.40	24.80	29.70	32.90	43.60
Cabinet, "	10.10	11.70	12.80	15.50	17.50	20.70	22.80	26.80	29.60	33.90	36.90	46.90

SINGLE-CUT FILES.

Length, inches,	4	5	6	7	8	9	10	11	12
Pit Saw, doz.,	\$4.80	5.40	6.10	7.00	7.50	8.50	9.10	10.70	11.80
Cant Saw, doz.,	4.30	4.70	5.40	6.10	6.40	7.80	8.70	10.40	11.40
Cross Cut, "	4.80	5.40	6.10	7 00	7.50	8.50	9.10	10.70	11.80
Hook Tooth, doz.	,		6.70	7.70	8.30	9.40	10.10	11.80	13.00
Planer Knife, "					6.40		8.60		12.10

DOUBLE-ENDED TAPER.

Length, inches					6	7	8	9	10
Per dozen .						3.50	3.90	4.40	4.90

Sizes below 4 inches, not extended, take 4-inch price. Half inches not specified, take next higher full inch price. Dead Smooth, double the price of Bastard Cut.

EMERY (GRAIN).

Numbers					•	4 to 46	50 to 180	Flour.
10 lb. Cans,	per lb					\$0.10	.10	.08
50 " "	66					.09	.09	$.07\frac{1}{2}$
1 Kegs abo	ut 100	lbs ,	per	lb.		.08	.08	.07
1/2	· 175	š "	6	۴ .		.07	.07	$.0^{\frac{1}{2}}$
Kegs '	350) "	4	6	٠	.06	.06	$05\frac{1}{2}$

GRINDING AND POLISHING MACHINES.

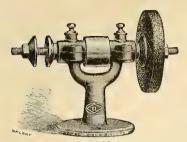


Fig. 793.

Will run two Wheels, 6 inches Diameter. Size of Arbor between Flanges, ½ inch. Size of Pulley on Spindle, 2x1; inches.

	O the I thank		I I	,	-	ab a no
rice	Head.					\$ 6.00
6.6	Column					10.00
6.6	Countersha	ft				10.00

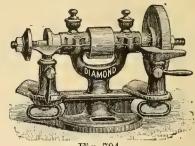


Fig. 794.

Will run two Wheels 6 inches in Diameter. Size of Arbor between Franges, ½ inch. Size of Pulley on Spindle 2x11 inches. \$ 8.50 Price Head 10.00

Commu .		20.00
Countershaft		10.00

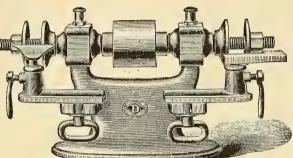


Fig. 795.

Fig. 795.

Will run two Wheels 9 in. Diameter. Size of Pulley, 3x23 inches.

Size of Arbor between Flanges, 3 in. \$16.00 Price Head 12.00 Column 12.00 Countershaft .

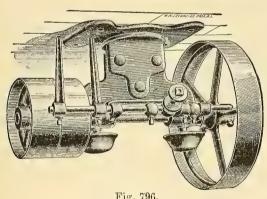


Fig. 796.

PATENT COUNTERSHAFT.

WITHOUT PATENT BELT SHIFTER,

Used with Grinding Machines, Figs. 793, 794, 795. This is a convenient Countershaft for any light machinery. The drop of hangers is 7 inches. The size of tight and loose pulleys is 6 inches in diameter, $2\frac{1}{2}$ in, face. Diameter of driving pulley, 12 inches, $2\frac{1}{4}$ inch face; diameter of shaft, $\frac{7}{8}$ inch. Length of shaft, 18 inches. We also furnish larger sizes of this hanger.

Price as shown \$10.00

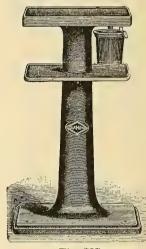


Fig. 797.

COLUMN WITH WATER IRON POT.

For mounting Grinding Machines Figs. 793, 794.

Size of Iron Table 16 x 10 inches 16 x 13 Size of Base of Column Height from floor . . 30 Weight of Column . . . 100 pounds . \$10.00 Price with Water Pot Fig 795

CRINDING AND POLISHING MACHINES.

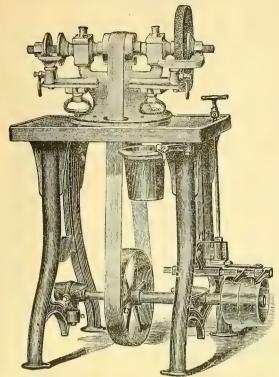
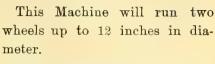


Fig. 798.



Size of Arbor between Flanges, 1 inch; size of Pulley, $4x3\frac{1}{2}$ inches. Price of Machine, Stand and

Driving Shaft, as illustrated,

\$60.00

Price Grinding Head . 28.00 "Frame with Water Pot,

17.00

Price Driving Shaft and Belt Shifter attached . 15.00

Weight of Stand . . 175 lbs.

" with Stand and countershaft 300 lbs

Weight complete boxed for export 375 lbs.

This Machine will run two wheels up to 14 inches diameter.

Size of Arbor between Flanges, 1 inch; size of Cone Pulley, $4\frac{1}{2}$ and $3\frac{1}{2}x3\frac{1}{4}$ inches.

Price on column, as illustrated, with Countershaft . \$65.00

Price of Grinding Head . 33.00

Price of Column and Table with Water Pot . . . 15.00

Price of Countershaft with Cone Pulley and Belt Shifter 17.00

Price of Surface Attachment 25.00

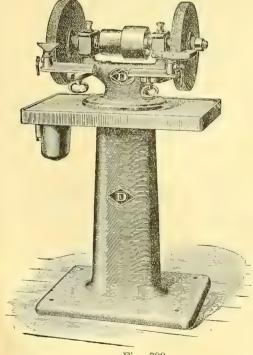


Fig. 799.

inches.

35.00

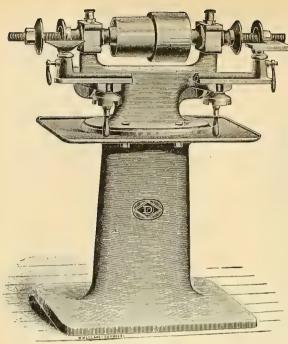


Fig. 800.

Size of Base on Head.

Height from Table to center of Spindle, 15

Surface Table Attachment,

CRINDING MACHINE.

This machine will run two wheels up to 16 inches in diameter.

THE COUNTERSHAFT has tight and loose pulleys 8x43 inches, and cone pulley 12 and 13x43 inches. Drop of hangers is 10 inches, and shaft is 32 inches long.

Countershaft should revolutions per minute. This will give the spindle, on the slowest speed, 1,200 revolutions; on the quickest speed. 1.560 revolutions per minute.

Price (on Colui	m 1	with C	ou n t	er-	
shaft					8	\$80.00
Price o	f Head o	nly				46.00
4.6	Counte	rsha	ft			17.50
6.6	Iron Pe	dest	tal, wit	h Ta	ble	16.50
	Adiust	ible	Surf	ice "	Γa.	

. 30.00 ble Attachment. Weight on Column as shown 500 lbs. Weight Complete, with Coun-

tershaft boxed for export 675 lbs.

FIG. 800A

CRINDING MACHINE.

NEW PATTERN, IMPROVED AND ENLARGED.

This machine is designed to run two wheels up to 20 inches diameter. In other respects the description of this machine is same as Fig. 800, illustrated above.

18x12 inches. Length of Bearings.

Diam. Spindle in Bearings,

Height from Floor to top of Iron Table, 19	4.6	Diam. 8	Spir	i. bet. F	langes,	13	6.6
Height from Floor to centre of Spindle, 34	6 0	Size Co	ne.	Pulley of	n Spin-	-	
Distance between Wheels,	66						* *
Dimensions of Iron Table, . 26x20	6.6	Length	of	Spindle,		$39\frac{7}{7}$	
Dimensions of Base of Column, 26x24	6.6	J		1			
Weight complete, with Countershaft,						750 1	bs.
Weight complete, with Countershaft, b							
Price on Column, with Countershaft,							\$108.00
Price of Head only,			Ċ			•	70.00
" Countershaft,			i.			•	20.00
" Iron Column, with Table,			•	- '		•	18.00
			-				10.00

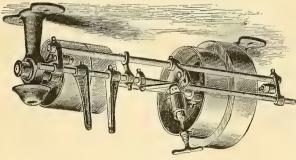
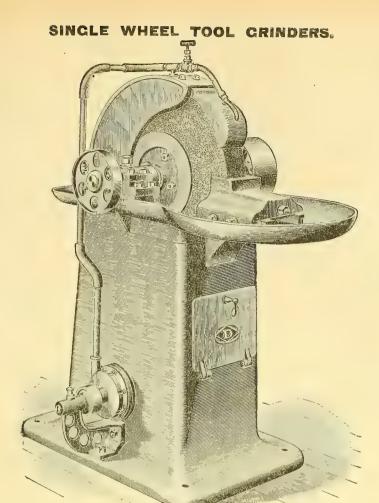


Fig. 801.

COUNTERSHAFT

for Machines is here shown with Hadley's Patent Belt Shifter attached. It has tight and loose pulleys, $8x5\frac{1}{4}$. Cone pulleys, 17 and $18x4\frac{3}{4}$. The drop of hangers is 10 in. Entire length of shaft, 34 in. For Machine the Countershaft should run 400 revolutions per minute. will give to the spindle, on the slowest speed, about 970 revolutions; on the quickest speed, about 1,200 revolutions per minute.



No. 4. No. 1 No. 2. No. 3. No. 5. 14×2 $24 \times 3\frac{1}{2}$ Size of Wheels $20 \times 2\frac{1}{2}$ 30×4 36 x 4 The machine has tauks located inside of column, easily accessible. An arrange-

F12. 503.

ment patented draws the water by siphon from the upper to the lower tank. Engile lithe boxes are used, protected at each end by patented dust excluding device. The water is di tributed on the wheel directly in front of the tool being ground. On the inside of the hood a raised surface is cast, which is the outside diameter of the flanges used, and which leads all spray or water from the inside of the hood to

the column, keeping it entirely from the spindle and boxes. The rests are movable to and from the wheel, without the use of wrench. The collars, steel spindles, pulleys, and all running parts are turned accurately to obtain a well balanced, smooth running machine. The truing device is permanently attached to the rest. By turning a screw the device is brought to the wheel, which is thus kept perfectly

true and sharp.

3

The Tool Grinder with an Automatic Pump and separate water tanks, with patented siphon arrangement for separating the clean water from the dirt and sediment, with the power to control or regulate the flow of water over the wheel and tool, when being ground by the operator, will always have an advantage over any machine of this class that uses the same water over and over, mixed with the sediment from the wheel, from which no provision has been made to separate the same, or to regulate the flow of it upon the wheel, For Description See Page 232.

No. I TOOL CRINDER.

EMERY WHEEL 14 x 2 x 11 INCHES.

	1 $\frac{1}{2}$ in. $3 \times 3\frac{1}{2}$ in. 400 lbs.
Price, complete with Countershaft and Truing Device,	\$87.50

Tight and loose pulleys on Countershaft, 7 in. diameter. Driving Pulley on Countershaft, 15 in, diameter. Countershaft should run 300 revolutions per minute.

No. 2 TOOL GRINDER.

EMERY WHEEL 20 x 23 x 13 INCHES.

Size of Base, 24 x 27 in.

Height from floor to centre Spindle, 38 in. Diam. of Spindle between Flanges, . 13 in. Diam. of Cone Pulley on Spindle, 5 and 6 x 33 in. . 7 in. long x 1\frac{1}{2} in. diam. Weight, Weight with Countershaft boxed for export,

Price, complete with Countershaft and Truing Device, Countershaft has tight and loose pulleys, 8 x 3\frac{1}{2} in. Cone Pulley, 12 and 13 in. diam. It should run 250 revolutions per minute, giving the spindle 500 to 600 revolutions per minute.

No. 3 TOOL GRINDER.

EMERY WHEEL 24 x 33 x 10 INCHES.

Diam, of Spindle between Flanges, 2 in. Size of Base, 26 x 40 in. Height from floor to centre Spindle, 36 in. 8 in. long x $1\frac{3}{4}$ in. diam. Bearings, Weight, 1200 lbs. 1400 lbs. Dimensions with Countershaft boxed for export. . . 34 x 48 x 57 in. Price, complete with Countershaft and Truing Device, . \$225.00 Countershaft should run 280 revolutions per minute, giving the Spindle a speed of 476 revolu-

tions per minute. Countershaft has tight and loose Pulleys, 10 x 5\frac{1}{4} in. Driving pulley, 17 x 6 in.

No. 4 TOOL GRINDER.

EMERY WHEEL 30 x 4 x 16 INCHES.

Size of Base. 28 x 45 in. Diam. of Spindle between Flanges, Height from floor to centre Spindle, 37 in. Diam of Pulley on Spindle, 14 in., 6 in. face. . 9 in. long x $2\frac{3}{4}$ in. diam. Weight, Bearings, 2000 lbs. Weight with Countershaft, boxed for export, . 2500 lbs. Weight with Countershaft, boxed for export,
Dimensions with Countershaft boxed for export, 36 x 56 x 60 in.

Price, complete with Countershaft and Truing Device, \$275 00

Countershaft has tight and loose Pulleys, 10 in. x 6 in. Driving Pulley, 18 in. x 6 in. Countershaft should run 280 revolutions per minute, giving the Spindle a speed of 360 and upwards revolutions per minute.

No. 5 TOOL CRINDER.

EMERY WHEEL 36 x 4 x 21 INCHES.

Size of Base, 28 x 51 in. Diam. of Spindle between Flanges, Height from floor to Centre Spindle, 37 in. Diam. of Pulley on Spindle, 16 in., 6 in. face. Weight, Bearings, 10 in. long x $2\frac{3}{4}$ in. diam. 2500 lbs. Weight with Countershaft boxed for export,

. 3000 lbs. Weight with Countershaft boxed for export,
Dimensions with Countershaft boxed for export, $36 \times 56 \times 60 \text{ in.}$

Price, complete with Countershaft and Truing Device, \$325.00

The Countershaft has the same dimensions as for No. 4 machine, and should run 260 revolutions per minute, giving to the machine a speed of 292 revolutions per minute.

For illustrations see page 231.

PRICE LIST EMERY WHEELS.

DIAM.	THICKNESS OF WHEELS IN INCHES											REVOLU-	
INCHES	$\frac{1}{4}$	$\frac{1}{2}$	<u>5</u> 8	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	PER
1½	\$.30	\$.40	\$.45					\$.70		\$.90	\$ 1.00	\$ 1.10	14000
2	.35		.55	.55	.60	.65	.70	.80	.90	1.00	1.10	1.20	10000
21/2	. 40		.70	.75	.85	.95	1.05	1.25	1.45	1.65	1.85	2.05	8500
3	.50		.90	.95	1.10		1.40	1.70	2.00	2.30	2.60	2.90	7000
31/2	. 60		1.05	1.15	1.35		1.75	2.15	2,55	2.95	3 35	3.75	6035
4	.75		1.25	1.35	1.60		2.10	2.60		3.60	4.10	4.60	5300 4700
432	.90		1.40	1.55		2.15	2,45	3.05		4.25	4.85	5.45	4200
5	1.00		1.65	1.80		2.60	3.00	3.80	4.60	5.40 8.25	6.20 9.55	7.00 10.85	3500
6	1.40		2.10	2.40		3.70	4.35	5.65 7.25	6.95 8.95	10.65	12.35	14.05	3000
7	1.85			3.00 3.60		4.70 5.60	5.55 6.60	8.60		12.66	14.60	16.60	260)
8	2.10			4.25		6.55	7.70	10.00		14.60	16.90	19.20	2300
9	2.50 3.00			5.00		7.70	9.05	11.75		17.15	19.85	22,55	2100
10 12	3,50		5.00	6.00		9.00	10.70	14.00	17.40	20.75	24.25	27.50	1800
14	4.05			8.45		12.85	15.05	19.45		28.25	32.65	37.05	1500
16	1	8.00	9.45	10.85		16.55	19 40	25.00	30.80	36.50	42.20	47.90	1300
18		0.00	0.10	13 25		20.75	24.50	32.00	39.50	47,00	54 50	62.00	1150
20				15.75		24 75	29.25	38.25	47.25	56.25	65.25	74.25	1050
22				20.10	25.00	31.00	37 00	49.00	61.00	73.00	85.00	97.00	950
24					29,00	36.0)	43.00	57.00	71.00	85.00	99.00	113.00	850
26					35.00	43.00	51 00	67.00	83.00	99 00	115.00	131.00	775
30						50.00	61,00	83.00	105.00	127.00	149.00	171.00	700
36							95 00	126.00	157.00	188.00	219 00	250 00	525
42								160.00	190.00	1225.01	260.00	300.00	40)
48								185 C0	220.00	265.00	300.00	360.00	350

For the convenience of users the different grades are divided into the following classes:

CLASS 1 .- Coarse and very hard For grinding heavy castings.

CLASS 2.—Coarse and medium hard. For grinding sprues from castings, stove fitting, etc. CLAS 3.—Medium coarse and medium hard. For general machine shop use, lathe tools, small castings, wrought and malleable iron and steel.

CLASS 4.—Coarse soft. For surfacing iron and steel.
CLASS 5.—Very soft wheel. For gumming saws and sharpening wood-workers' tools.
CLASS 6.—Fine and medium soft. For grinding tools and surfacing iron, brass or steel.
CLASS 7.—Very fine and medium hard. For grinding taps, cutters, drills, etc., where a corner is to be held up, and where little metal is to be removed

ZINC & RUBBER AND BRONZE & RUBBER WEATHER STRIP.

Specially adapted to the Doors and Windows of Palace Cars, Railroad Coaches, Steamships. and all doors and windows having semi-circular or elliptic heads where Wood and Rubber Weather Strips cannot be well applied.

SINGLE EDGE.

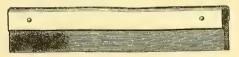


Fig. 803. Price per foot .



Fig. 804. Price per foot



Fig. 805.

Price per foot

CUSHION EDGE.



Fig. 806.

Price per foot . .



Fig. 807.

Price per foot

All Metal Strips manufactured in 7-foot Lengths.

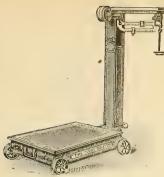


Fig. 808.

PORTABLE PLATFORM SCALES.

WITH BRASS BEAM AND SLIDING POISE.

WITH WHEELS. WITHOUT WHEELS.

No.	Capacity Lbs	Platform Inches.	Price,	No.	Price.
1116.	2,500 x \frac{1}{5}	25×33	\$85.00	1100.	\$80.00
1118.	$2,000 \times \frac{1}{2}$	25×33	75.00	1102.	70.00
1120.	$1.5^{\circ} 0 \times \frac{1}{2}$	21 x 28	56.00	1104.	52.00
1122.	$1,200 \times \frac{1}{2}$	20×28	49.00	1106.	45.00
1124.	$1,000 \times \frac{1}{2}$	17×26	43.00	1108.	39.00
1126.	$800 \times \frac{1}{2}$	17 x 26	38.00	1110.	34.00
1128.	$600 \times \frac{1}{4}$	16×25	33 00	1112.	30.00
1130.	$400 \times \frac{1}{4}$	15 x 21	26.00	1114.	23.00

Scales, 1000 lb. and larger, have pillar braces.

PORTABLE PLATFORM SCALES. WITH WHEELS AND DROP LEVER.

WITH BRASS BLAM AND SLIDING POISE.

No.		Capacity Lbs.	Platform Inches.	Price.
1166		$2,500 \times \frac{1}{2}$	25 x 33	\$94.00
1168		$2,000 \times \frac{1}{2}$	25 x 33	82.00
1170		$1,500 \times \frac{1}{2}$	21 x 28	70.00
1172		1,200 x ½	20 x 28	59.00
1174	•	$1,000 \times \frac{1}{2}$	17 x 26	51.00



Fig. 809.

WHEELBARROW SCALES.

Made Entirely of Iron, for Weighing Coal, Ore or Other Substances in Barrows.

Furnished with Set of Inclines.

WITH BRASS BEAM AND SLIDING P ISE

WITHOUT	WHEEL	s. w	ITH W	HEELS.
Capacity Lbs. 1,000 x 1 1,500 x 1	Platform Inches. 42 x 30 42 x 30	Price. \$70.00 80.00	No. 1384.	Price. \$75.00 85.00

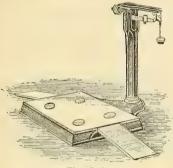


Fig. 810.

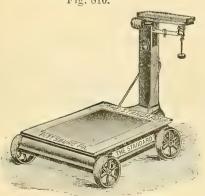


Fig. 811.

PORTABLE PLATFORM SCALES.

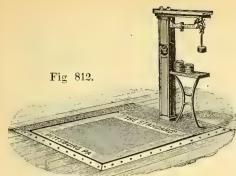
FOUNDRY SCALE, EXTRA HEAVY.

WITH BRASS BEAM AND SLIDING POISE.

WITH WHEELS.

WIT	H V	VHEELS	AND DROP	LEVED
5210		. 6.00	0 31×40	165.00
5209		4,00	0 2 2 20	140.00
1208		. 3.00	$0 = 31 \times 40$	\$125.00
No.		Lbs.		Price.

1164		3,000	31×40	\$125 00
5165		4,000	31×40	140 00
5166	•	6,000	31×40	165.00



DORMANT WAREHOUSE SCALES.

With Single Wood Pillar.

Brass Sliding Poise.

	Capacity	Platform	
No.	Ĺbs.	Inches.	Price.
1036	$5,000x_2^1$	48x48	\$150.00
1038	$3,500x^{\frac{7}{2}}$	42x44	105.00
1040	$2,500x^{\frac{7}{2}}$	46x37	92.00
5044	$1,500x_{\frac{7}{2}}$	42x30	85.00

Above Scales furnished with Drop Lever if desired, but for ordinary use we recommend Scales without it.

DORMANT WAREHOUSE SCALES.

With Two Iron Pillars.

Double Brass Beam and Sliding Poises.

No.		Capacity Lbs.	Platform Inches.	Price.
1046		$5,000x\frac{1}{2}$	48x48	\$170.00
1048		$3,500\mathrm{x}\frac{1}{2}$	42x44	$125\ 00$
1050		$2,500\mathrm{x}\frac{1}{2}$	46x37	105.00
5054		$1,500x_{\frac{1}{2}}$	42x30	100.00

MINERS' AND TRANSPORTATION SCALES.

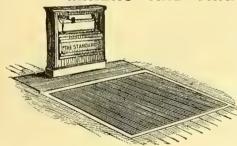


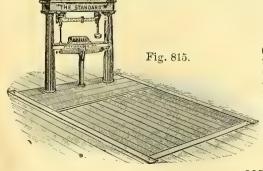
Fig. 813.

TAO.	Capac:	ıty	Plation	n,	Single	Double
	10118.				Beam.	Beam.
2192	2	5	ft.x4ft.		\$135.00	\$143.50
2166	3	6	ft.x3ft. 1	0 in.	155.00	163.50
2190	3	- 8	ft.x4ft.	$6\frac{1}{5}$ iu.	155.00	163.50
2164	4	5	ft.x4ft.	-	170.00	180.00
2188	4	6	ft.x4ft. 1	$1\frac{1}{4}$ n.	170.00	180.00
2163	4	10	ft.x4ft.	$1\frac{1}{4}$ in.	170.00	180 00
2186	õ	-5	ft.x4ft.	•	185.00	195.00
2162	5	6	ft.x4ft. 1	$1\frac{1}{4}$ n.	185.00	195.00
2184	6	-7	ft.x4ft.	$9\frac{1}{4}$ ın.	205.00	215.00
2158	8	-6^{1}	ft.x4ft. 1	$0\frac{3}{8}$ in.	240.00	250.00
2156	10	6	ft.x4ft. 1	$1\frac{1}{4}$ in.	270.00	280.00

Price

Fig. 814.

The sizes of Platforms of these Scales may be varied somewhat from the above dimensions and without increasing cost of the Scale. Above prices are exclusive of lumber and foundation, which are to be furnished by the purchaser.



RAILROAD DEPOT SCALES.

						Price	Price
	No. C	lapaci	ty	Platfor	m.	Single	Double
		Tons	,			Beam.	Beam.
	6262	10	12	ft.x8ft.	10 in.	\$330.00	\$345.00
	2264	6	10	ft.x9ft.	$2\frac{1}{4}$ in.	280.00	295.00
	6272	6	8	ft.x6ft.	$0\frac{5}{8}$:n.	280.00	295.00
	6274	6	6	ft.x5ft.		280.00	295.00
	2266	4	9	ft.x6ft.	11 in.	230.00	240.00
	6278	4	6	ft.x5f.		$230 \ 00$	240.00
	6276	4	- 5	ft.x4ft.		230.00	240.00
2	2268	3	6	ft.x4ft.	$11\frac{1}{4}$ in.	210.00	218.50
-	2270	2	73	ft.x4ft.	8ģio.	168.00	176.50
	4 7				1 .	0.4.1	1

Above prices are exclusive of timber and foundation,

SINGLE BEAM FOR RAILROAD TRACK SCALE.

ENTIRE CAPACITY INDICATED ON BEAM.



Fig. 816.

DOUBLE BEAM FOR RAILROAD TRACK SCALE.

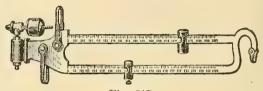


Fig. 817.

Double Beam for Track Scales, extra

\$20.00

TRIPLE BEAM FOR RAILROAD TRACK SCALES.

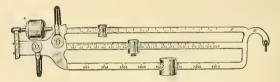


Fig. 818.

CRIDIRON BEAM FOR RAILROAD TRACK SCALE.

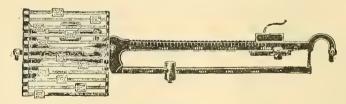


Fig. 819.

The Gridiron Beam is especially adapted for coal mines. Weight or Tare of empty railroad car is taken on lower beam and weight of coal from each small car is noted on a separate beam, giving credit to individual miners. When car is loaded total weight is taken on upper beam.

	0	A A							
Gridiron Beam	for Track	Scales, witl	12	Coal	Bean	as, ez	xtra		\$75.00
Each Coal Bear	m above tw	elve, extra							5.00

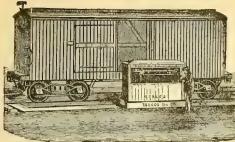


Fig. 820.

Capacity from 15 tons to 150 tons Length of Platform, 6 to 130 feet, Prices quoted upon receipt of Specifications.

Scales furnished with either Single, Double or Triple Beams.

Prices quoted will be exclusive of Timber and Foundations, which are furnished at purchaser's expense.

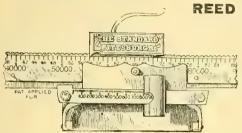


Fig. 821.

RECORDING ATTACHMENT. FOR SCALE BEAMS.

Prices on application.

The Recording Attachment shown in this illustration is the most satisfactory device yet invented for obtaining a correct record of weights.

Its simplicity of construction, absolute accuracy of record of the weight at one operation, cannot be surpassed. movement is not affected by dirt, dust or weather.

The correct weight can be had in less time than by reading the beam, and a record is obtained which can be referred to at any time, and is valuable evidence in case of disputed weights. The attachment can be applied to any make of Scales.

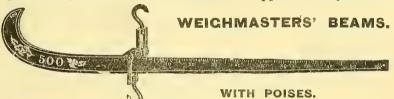


Fig. 822.

Capacity. Lbs.		Best			BEST		Committee		Best		$_{ m Best}$		
		J_{AP}	ANNED.	Po	LISHED.	Capa T 1	CIL	у.	J_{AB}	PANNED.	Polished.		
		No.	No. Price.		Price.	Lbs.		No.	Price.		Price.		
100			102	\$ 7.00	103	\$11.00	700			118	\$19.00	119	\$24.00
150			104	7.50	105	11.50	800			120	22.00	121	27.00
· 200			106	8.00	107	12.00	1000			122	24.50	123	30.00
250			108	8.50	109	12.50	1200			124	27.00	125	33.00
300			110	9.00	111	13.00	1500			126	32.00	127	40.00
400			112	12.50	113	16.50	2000			128	41.00	129	50 00
500			114	14.00	115	18.50	2500			130	48 00	131	58.00
600			116	15 .50	117	20.00	3000			132	55.00	133	67.00
-							0	_					**

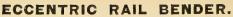
Prices on Weighmasters' Frames, suitable for above beams, quoted on application.

TRACK GAUGE.



Fig. 823.

Huntington Track Gauge Per dozen, \$21,00



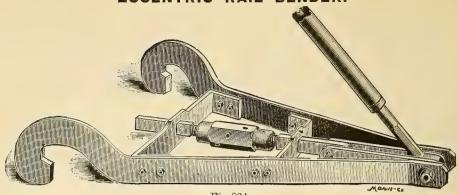


Fig 824.

WILL BEND 56 TO 90 LB. RAIL.

Operating Lever is made of Pipe. Weight, 140 to 190 lbs. Price, \$50,00.

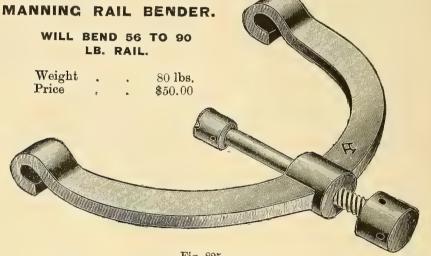
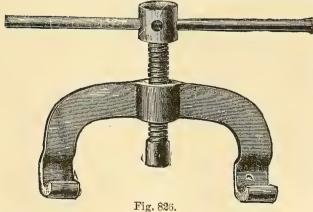


Fig. 825.

SCREW RAIL BENDERS OR JIM CROWS.



$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Number.	Diameter of Screw, in.	Span to Centro of Claw, in.	Weight with Lever, Ibs.	For Steel Rails up to lbs . yd.	Price with Lever.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0	$1\frac{3}{4}$	14	45	14	\$19.00
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1	2	16	65	20	21.00
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2	$2\frac{1}{4}$	20	100	45	30 00
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3	$2\frac{1}{2}$	24	140	65	42 00
$\frac{4}{90}$ $\frac{23}{4}$ $\frac{24}{185}$ $\frac{24}{90}$ $\frac{59}{59}$ $\frac{39}{100}$	$3\frac{1}{2}$	$2\frac{5}{8}$	24		75	50 00
	4	$\frac{23}{4}$	24	185	90	59 00

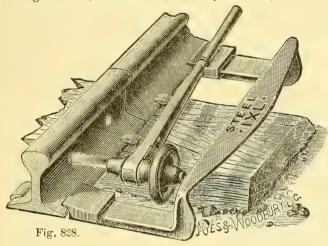
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For drilling holes through rails for electric bording wires, and for binding rods, etc. Engineers and others familiar with the work the Drill is intended for will at a glunce see its utility and convenience. Two sets of gears go with each drill, making it either speeded or geared back. Twist Drills, with \(\frac{1}{2} \) inch shank fit the hole in spindle.

A chuck is furnished with each machine which will hold Drills smaller than \(\frac{1}{4} \) inch. It weighs 68 lbs., and will carr, drills up to 1 inch,

Price \\$25.00



THE "IXL" TRACK DRILL AND CLAMP.

PRICE, COMPLETE, \$8.00.

ALEXANDER CAR REPLACER.

N . 1, Weight, perpair, 120 lbs. 6 inch Rail. Price, per pair, \$17.00.

No. 2, Weight, per pair, 100 lbs., 5 inch Rail. Price, per pair, \$16.00.

No. 3, Weight, per pair, 50 lbs. For Traction Roads. Price, per pair, \$12.00.

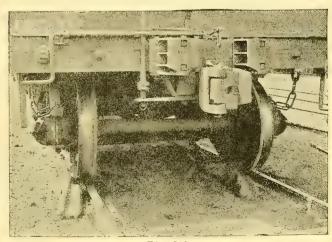


Fig. 829.

RAILROAD TRACK TOOLS.

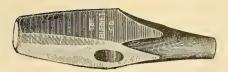


Fig. 830.

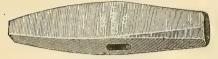


Fig. 831.



Fig. 832.



Fig. 833.



Fig. 834.

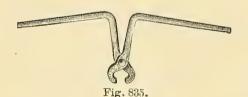




Fig. 836.

TRACK PUNCH, ROUND POINT.

For Puncking Rails.
Solid Steel. Verona.
Per lb., 25 cts.
Made of Special Steel, carefully tempered and tested. Warranted.

TRACK PUNCH, SQUARE POINT.

For Punching Rails.
Solid Steel. Verona.
Per lb., 25 cts.
Best Tool Steel. Warranted.

TRACK CHISEL.

For Cutting Rails.
Best Tool Steel. Verona.
Per lb , 25 cts.

Being made of Special Steel, and carefully tempered and tested, we guarantee it the best ever made.

SPIKE MAUL, NEW PATTERN.

Solid Steel. Verona. Per lb., 16 cts.

Any desired pattern or weight will be made, carefully tempered, and warranted.

SPIKE MAUL, OLD STYLE.

Solid Steel. Verona.
Per lb., 16 cts.

Any desired pattern or weight will be made, carefully tempered, and warranted.

RAIL TONGS.

Solid Steel. Verona.
Per lb., 20 cts.
Warranted.
No. 1590 "YP" Tongs, per lb., 30 cts.
Weight 15 lbs.

RAIL FORK.

Solid Steel. Verona. Per lb., 20 cts. No. 1600 "YP" Fork, per lb., 30 cts. Weight, 14 lbs.

RAILROAD AMOND POINTED.



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Number.

Size of Eye, 3 x 115 inch. nond Point . Per doz., \$10.00

Fig. 838. EST REFINED IRON AND STEEL POINTS.

'rice. Nos. Weight Doz, Price. 3.00 2034 9 lbs. \$21.00 18.50 91 lbs. 2035 22,00 10 lbs. 19.00 2036 23.00 20.00

MINERS' PICK. CURVED.



ny weight desired, and warranted as to temper and quality.

Solid Eye. Size of Eye, $3 \times 1^{\frac{1}{16}}$ inch. na, Miners' Pick, Curved, any weight, Per lb., 20 cts.

173		DRIFTING.	BEST REFINED	IRON	AND STE	EL POIN	TS.
		Weight.	Doz Price.	Nos.	Size.	Weight.	Doz, Price.
174	1_	3 lbs.	\$12.50	1753	4	5 lbs.	\$16.00
175	2	4 lbs.	14.00	1754	5	6 lbs.	17.50
176	3	4½ lbs.	15.00				

MINERS' PICK. SURFACE.



Fig. 850.

Made any weight desired, and warranted as to temper and quality. Solid Eye. Size of Eye, 3 x 1¹/₁₀ inch.

20. Verona, Miners' Pick, Surface, any weight, Per lb., 20 cts.

"YP" SURFACE. BEST REFINED IRON AND STEEL POINTS.

One End Clay Pick, the other Diamond Point.

Jos.	Size.	Weight.	Doz, Price	Nos.	Size.	Weight.	Doz. Price.
.740	1	4 lbs.	\$14.00	1744	5	6 lbs.	\$18.00
1741	2	$4\frac{1}{2}$ lbs.	15,00	1745	6	$6\frac{1}{2}$ lbs.	19.00
1742	3	5 lbs.	16.00	1746	100	7 lbs.	20.00
1743	4	$5\frac{1}{2}$ lbs.	17.00				

LOCOMOTIVE COAL



Fig. 851.

Made any desired weight. Warranted.

No. 26. Verona, Locomotive Coal Pick, any weight Per lb., 17 cts.

RAILROAD TRACK TOOLS.



Fig. 830.

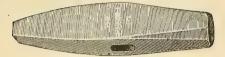


Fig. 831.



Fig. 832.

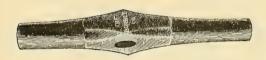


Fig. 833.



Fig. 834.

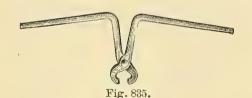




Fig. 836.

BAR.

31. Verona Verona Per Ib., Solid Steel. Any weight. Per lb., 10 cts. 650. "УР". Per lb., 15 cts. techt, 20 to 24 lbs. Round Point.

TRA . Per lb., 10 cts. olid Steel. Any weight. Sol. "Y P" Pinch Bar Per lb., 12 cts. Best Toight, 12 to 30 lbs.

Per lb., 12 cts. For Cut Steel. Best Tool Steel. Tamping Per lb, Per lb, 18 cts. Being made of Sp 12 lbs. carefully tempered guarantee it the best

SPIKE MAUL, NEW

Solid Steel. Per lb., 16 cts. Any desired pattern or we

be made, carefully tempere warranted. \$12.00 12.00

SPIKE MAUL, OLD STYLE,

Verona, Price Solid Steel. Per lb., 16 cts. Any desired pattern or weight 3.00 be made, carefully tempered, 100 warranted.

RAIL TONGS.

Solid Steel. · Verona. Per lb., 20 cts. Warranted. No. 1590 "YP" Tongs, per lb., 30 cts. Weight 15 lbs.

RAIL FORK.

· Verona. Solid Steel. Per lb., 20 cts. No. 1600 "YP" Fork, per lb., 30 cts. Weight, 14 lbs.

CLAY PICK. DIAMOND POINTED.



Fig. 848.

Made any weight or size desired. Carefully tempered. Warranted. Solid Eye. Size of Eye, 3 x 1 1 inch.

No. 17. Verona, Clay Pick, Diamond Point Per doz., \$10.00

"YP" CONTRACTORS' BEST REFINED IRON AND STEEL POINTS.

Nos.	Weight.	Doz. Price.	Nos.	Weight.	Doz, Price,
2030	7 lbs.	\$18.00	2034	9 lbs.	\$21.00
2031	$7\frac{1}{2} \text{ lbs.}$	18.50	2035	$9\frac{1}{2} \text{ lbs.}$	22.00
2032	8 lbs.	19.00	2036	10 lbs.	23.00
2033	$8\frac{1}{2}$ lbs.	20.00			

MINERS' PICK. CURVED.



Fig. 849.

Made any weight desired, and warranted as to temper and quality.

Solid Eye, Size of Eye, 3 x 1½ inch.

No. 19. Verona, Miners' Pick, Curved, any weight Per lb., 20 cts.

"YP" DRIFTING. BEST REFINED IRON AND STEEL POINTS.

Nos.	Size.	Weight.	Doz Price.	Nos.	Size.	Weight.	Doz. Price.
1750	1	3 lbs.	\$12.50	1753	4	5 lbs.	\$16.00
1751	2	4 lbs.	14.00	1754	5	6 lbs.	17.50
1752	3	$4\frac{1}{2}$ lbs.	15.00				

MINERS' PICK. SURFACE.



Fig. 850.

Made any weight desired, and warranted as to temper and quality. Solid Eye. Size of Eye, $3 \times 1^{\frac{1}{16}}$ inch.

No. 20. Verona, Miners' Pick, Surface, any weight. Per lb., 20 cts.

"YP" SURFACE. BEST REFINED IRON AND STEEL POINTS.

One End Clay Pick, the other Diamond Point,

Nos.	Size.	Weight.	Doz. Price	Nos.	Size.	Weight.	Doz. Price.
1740	1	4 lbs.	\$14.00	1744	5	6 lbs.	\$18.00
1741	2	$4\frac{1}{2}$ lbs.	15.00	1745	6	$6\frac{1}{2}$ lbs.	19.00
1742	3	5 lbs.	16.00	1746	7	7 lbs.	20.00
1743	4	51 lbs.	17.00				

LOCOMOTIVE COAL PICK.



Fig. 851.

Made any desired weight. Warranted.

No. 26. Verona, Locomotive Coal Pick, any weight . Per lb., 17 cts.

COAL PICK.



Fig. 852.



Fig. 853.



Fig. 854.



Fig. 855.

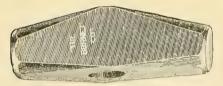


Fig. 856.

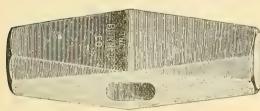


Fig. 857.



Fig. 858.

COAL WEDGE.

No. 42. Verona Coal Wedge, per lb. . 10 cts.

COAL MAUL.

No. 9. Verona Coal Maul, per
lb. . . . 16 cts.
Solid Steel, 4 to 10 lbs.
Warranted to stand the hardest usage.
Made any pattern or weight desired.

NAPPING HAMMER.

Verona Solid Steel.

No. 8. Napping Hammer, 4 lbs. and over, per lb. . 16 cts. No. 8. Napping Hammer, under

4 lbs., per lb. . 20 cts.

Made any desired pattern or weight.

Warranted.

HAND-DRILLING HAMMER.

Verona Solid Steel.

No. 14. Hand - Drilling Hammer, 4 lbs. and over, per lb. . . 16 cts

No. 14. Hand - Drilling Hammer, under 4 lbs.,
per lb. 20 cts.

Mide any weight desired, and warranted as to temper and quality.

STRIKING HAMMER.

Veroua Solid Steel.

No. 52. 4 lbs. and over, per lb. 16 cts. No. 52. Under 4 lbs., per lb. 20 cts. Any weight desired, and warranted.

DOUBLE-FACE STRIKING SLEDGE.

Fg. 858. Verona Solid Steel.

No. 15. 6 to 40 lbs., per lb. . 16 cts. Any size, from 3 to 40 lbs.

"YP" BLACKSMITHS' DOUBLE-FACE SLEDGE.

Solid Cast-Steel.

No.	Weight.	Per Lb.
1060	Under 3 lbs.	\$0.45
1060	3 to 5 lbs.	.36
1060	5 lbs. and above.	•30

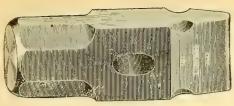


Fig. 859.

BLACKSMITHS' SLEDGE.

Verona. Cross Pein. Solid Steel. Warranted.

No. 28. Smith Sledge, 6 to 26 lbs.; pεr lb, 16 cts.

Well balanced. Made any size or weight.

Cross or Straight Pein as desired.

"YP" BLACKSMITHS' SLEDGES. SOLID CAST-STEEL.

	Cross Pein.			STRAIGHT PEIN.	
No.	Weight.	Per Lb.	No.	Weight.	Per Lb.
1030	Under 3 lb.	\$0.45	1040	Under 3 lb.	\$0.45
1030	3 to 5 lb.	.36	1040	3 to 5 lb.	.36
1030	5 lb. and above.	.30	1040	5 lb. and above.	.30



Fig. 860.

BLACKSMITH HAND HAMMER.

Verona. Solid Steel.

No. 60. Blacksmiths' Hand Hammer. Per lb., 20 cts.

Any weight to order.

"YP" BLACKSMITHS' HAND HAMMERS, WITH HANDLES.

Nos.	Size.	Weight.	Per Doz.	Nos.	Size.	Weight.	Per Doz.
280	0	1 lb. 10 oz.	\$13.00	283	3	3 lb.	\$16.00
281	1	2 lb.	14.00	284	4	3 lb. 8 oz.	17.00
282	2	2 lb. 10 oz.	15 00	285	5	4 lb. 8 oz.	19.00

Wei hts do not include Handles.

"YP" ENCINEERS' HAMMERS. WITH HANDLES.

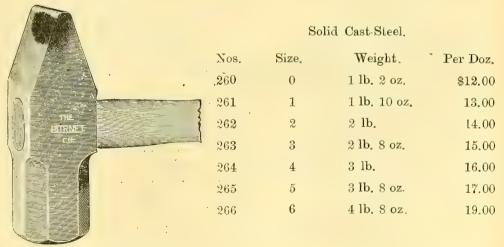
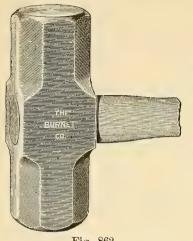


Fig. 861.

Weights do not include handles.

"YP" ENGINEERS' DOUBLE FACE HAMMERS WITH HANDLES.



Solid Cast Steel.

Nos.	Size.	Weight.	Per Doz.
270	0	1 lb. 8 oz.	\$14.50
271	1	2 lb.	15,50
272	2	2 lb. 6 oz.	16.50
273	3	3 lb.	18.00
274	4	3 lb. 10 oz.	19.50

Weights do not include handles.

Fig. 862.

DOUBLE FACE STONE HAMMER.



Fig. 863.



Fig. 864.



Fig. 865.



Fig 866

Warranted. Verona. No. 11 Double Face, 4 lbs. and over, per lb. . 19 cts. No. 11 Double Face, under 4 lbs, per lb. . 22 cts. Made any weight or size desired. Carefully tempered.

MASON'S STONE HAMMER.

Verona. Solid Steel. No. 10 Stone Hammer, 4 lbs. and over, per lb. 19 cts. No. 10 Stone Hammer, under 4 lbs., per lb. . 22 cts.

QUARRY SLEDCE.

CUTTING EDGE.

Solid Steel. Oval Eye. Verona. No. 12 Quarry Sledge, 6 to 24 lbs., per lb. . Made any desired weight. Warranted the best.

STONE SLEDGE.

Verona. Solid Steel. Oval Eye. No. 13. Stone Sledge, 6 to 24 lbs., per lb. 16 cts. Made any desired pattern or weight. Warranted.

235. 000				
"YP"	STONE	SLEDGES.	Solid	Cast Steel.

	1 1 -	STORE SEED	SILO. COLLE	Case Dicci.
No.		Weight	J.	Per Lb.
920		Under 3	lb.	\$0.45
920		3 to 5 ll	0.	.36
920		5 lb. and ak	oove.	.30



Fig. 867.



Fig. 868.



Fig. 869.



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Fig. 870.

BOILERMAKERS' RIVETING HAMMERS.

Octagon Pattern Face and Pein.
Solid Cast Steel.

Fig. 871.

No.	Size.	Weight.	Per Doz.
2600	1	1 lb. 8 oz.	\$14.50
2601	2	2 lb.	16.50
2602	3	2 lb. 8 oz.	19.00
2603	4	3 lb.	22.00

Weights do not include handles.

CAPPING OR SORTING HAMMER.

Verona.

No. 63. Capping or Sorting Hammer, . . . per lb., \$0.25 Double or Single Face. Any weight.

STONE AXE.

Verona. Solid Steel.

No. 43. Stone Axe, per lb., \$0.19 Any weight desired. Warranted.

STONE WEDGE.

Solid Cast Steel.

No.	Weight.	Per Lb.
1520	2 to 6 lb.	\$0.25

BOILERMAKERS' HAMMERS.

Round Pattern.

Solid Cast Steel.

Fig. 870.

No. Weight. Per Lb. 1110 2 to 3 lb \$0.50

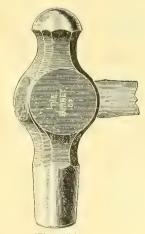
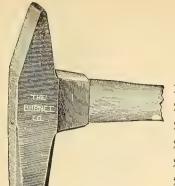


Fig. 871.



ADZE-EYE RIVETING HAMMERS.

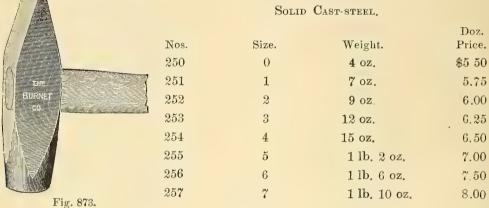
SOLID CAST STEEL.

		•	Doz.
Nos.	Size.	Weight.	Price.
240	1	6 oz.	\$7.00
241	2	9 oz.	7.50
242	3	12 oz.	8.00
243	4	1 lb.	8.50
244	5	1 lb. 4 oz.	9.00

Fig. 872.

Weights do not include handles

PLAIN EYE RIVETING HAMMERS.



Weights do not include handles.

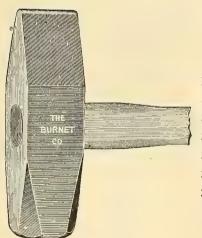


Fig. 874.

CHIPPING HAMMERS.

SOLID CAST-STEEL.

			Doz.
Nos.	Size.	Weight.	Price.
300	0	1 lb.	\$12.50
301	1	1 lb. 4 oz.	13.00
302	2	1 lb. 8 oz.	13.50
303	3	2 lb.	14,50
304	4	2 lb. 8 oz.	15.50
305	5	2 lb. 14 oz.	16.50

Weights do not include handles.

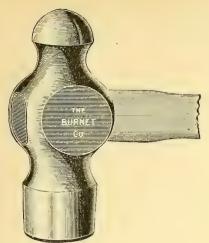


Fig. 875.

MACHINISTS' BALL PEIN HAMMERS. ROUND PATTERN.

FULL POLISHED. SOLID CAST-STEEL.

			Per
Nos.	Size.	Weight.	Doz.
330	00	8 oz.	\$15.00
331	0	12 oz.	15.00
332	1	1 lb. 8 oz.	17.50
333	2	2 lb.	19.50
334	3	2 lb. 4 oz.	20.50
335	4	2 lb. 8 oz.	22.00
336	5	3 lb.	25.00
337	6	3 lb. 8 oz.	27.00

Weights do not include handles.

MACHINISTS' STRAIGHT PEIN HAMMERS. ROUND PATTERN.

FULL POLISHED. SOLID CASI-STEEL.

Nos.	Size,	Weight.	Per Doz.
340	00	8 oz.	\$15.00
341	0	12 oz.	15.00
342	1	1 lb. 8 oz.	17.50
343	2	2 lb.	19,50
344	3	2 lb. 4 oz.	20.50
345	4	2 lb. 8 oz.	22.00
34 6	5	3 lb.	25.00
347	6	3 lb. 8 oz.	27.00

Weights do not include handles.

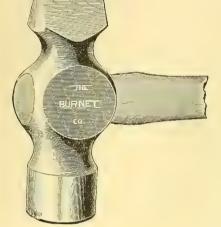


Fig. 876.

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l'ig. 877.

MACHINISTS' CROSS PEIN HAMMERS. ROUND PATTERN.

FULL POLISHED SOLID CAST STEEL.

Nos.	Size.	Weight.	Per Doz.
350	00	8 oz.	\$15.00
351	0	12 oz.	15.00
352	1	1 lb. 8 oz.	17.50
353	2	2 lb.	19.50
354	3	2 lb. 4 oz.	20.50
355	4	2 8 oz.	22.00
356	5	3 Ib	25.00
357	6	3 lb. 8 oz.	27.00

Weights do not include handles.

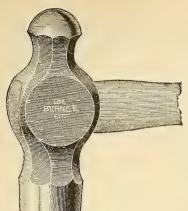


Fig. 878.

MACHINISTS' HAMMERS, SOLID CAST-STEEL.

	OC.	TAG	ON PAT	TERN.		BAI	LL PEI	
	Nos.	Size.	Weight.	Per Doz.	Nos.	Size.	Weight.	Per Doz.
	370	4	6 oz	\$12.00	377	4	2 lb.	\$16.50
(371	403 03 202 0	8 oz.	12.00	378	5	{ 2 lb. }	17.50
	372	$\frac{2}{0}$	12 oz.	12.00	910	0	(4 oz. ∫	11.00
	373	0	1 lb.	12. 50	379	6 -	$\begin{cases} 2 \text{ lb.} \end{cases}$	19.00
À	374	1	∫1 lb. }	13.5 0	0.0	,	8 oz. §	20.00
	017	r	(4 oz.)	10,00	380	77 }	2 lb.)	20.50
	375	2	∫ 1 lb. }	14.50		(12 oz. §	
	010	~	(8 oz.)	22,00	381	8	3 lb.	22.00
	376	3 4	1 lb.	15.50	382	9 -	§ 3 Ib. }	24.00
	0.0	<u> </u>	12 oz.)				(8 oz.)	

Polished Sides, Face and Pein. Weights do not include handles.

MACHINISTS' HAMMERS, SOLID CAST-STEEL.

OC.	TAGO	N PAT	TERN.		ROS	S PEH	N.
Nos.	Size.	Weight.	Per Doz.	Nos.	Size.	Weight.	Per Doz.
410	4	6 oz.	\$12.00	417	4	2 lb.	\$16.50
$\frac{411}{412}$	4(03,02)0	8 oz. 12 oz.	12.00 12.00	418	5	{ 2 lb. } } 4 oz. {	17.50
413	0	1 lb.	12.50	419	6	(216.)	19.00
414	1	$\begin{cases} 1 \text{ lb.} \\ 4 \text{ oz.} \end{cases}$	13.50	410	($\begin{cases} 8 \text{ oz.} \end{cases}$	
415	2	{ 1 lb. } { 8 oz }	14.50	$\frac{420}{421}$	$\begin{bmatrix} 7 \\ 8 \end{bmatrix}$	12 oz. } 3 lb.	20,50
416	3 {	1 lb. 1 12 oz. 5	15.50	422	9 {	3 lb. \ 8 oz. \	24.00

Polished Sides, Face and Pein. Weights do not include handles.

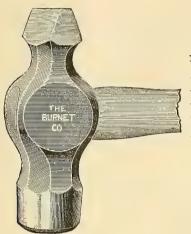


Fig. 879.

THE BURNET GO

Fig. 880.

MACHINISTS' HAMMERS, SOLID CAST-STEEL.

OCT	AGC	N PAT	TERN.	ST	RAI	OHT PE	ii.
Nos.	Size.	Weight.	Per Doz.	Nos.	Size	Weight.	Per Doz.
390	4.	6 oz	\$12.00	397	4	2 lb.	\$16.50
$\frac{391}{392}$	4 0 3 0 2	8 oz. 12 oz.	12.00 12.00	398	<i>5</i> -	$\begin{cases} 2 \text{ lb} \\ 4 \text{ oz.} \end{cases}$	17.50
393	Ö	1 lb.	12.50	200	e l	2 lb.	10.00
394	Ş	1 lb.	13.50	399	6	8 oz. §	19 00
	8	4 oz. (1 lb.)		400	7 }	2 lb. 1 12 oz. (20.50
395	2 {	8 oz.	14.50	401	8	3 lb.	22.00
396	3 {	1 lb.	15 50	402	9 {	3 lb.)	24.00
	,	12 oz (8 07. \	

POLISHED SIDES, FACE AND PEIN.

Weights do not include handles.

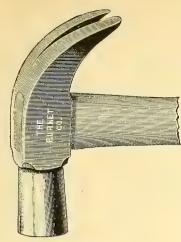


Fig. 881.

"YP" PLAIN EYE NAIL HAMMERS.

SOLID CAST-STEEL.

Nos. . 90 91 92 93 94 Size . 0 1 2 3 4 Weight, 7 oz. 12 oz. 15 oz. 1 lb . 2 oz. 1 lb . 8 oz Per Doz. \$6.25 6.50 6.75 7.00 8.00

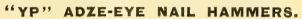
Weights do not include handles.

VULCAN PLAIN EYE NAIL HAMMERS.

SOLID CAST-STEEL.

Nos. 120 121 122 123 Size 2 1 Weight 12 oz. 15 oz. 1 lb, 2 oz, 1 lb, 8 oz, Per Doz. \$5.50 5.756.00 7.00

Weights do not include handles.



SOLID CAST-STEEL

Nos. . 70 71 72 73 74 Size . 0 1 $1\frac{1}{2}$ 2 3 Weight, 1 lb. 12 oz. 1 lb. 4 oz. 1 lb. 13 oz. 7 oz. Doz. Price, \$12.50 9.00 8.50 8.00 7 50

Weights do not include handles.

MAYDOLE'S ADZE-EYE HAMMERS.

SOLID CAST-STEEL.

No. . 0 1 $1\frac{1}{2}$ 2 3 Weight, 1lb. 10 oz. 1lb. 4 oz. 1 lb. 13 cz. $7\frac{1}{2}$ oz. Per Doz. \$11.50 8.75 8.00 7.50 6.75

Above weights do not include handles.

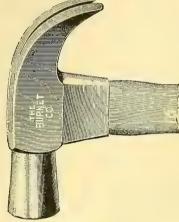


Fig. 882.

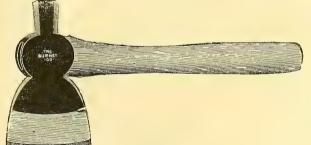


Fig. 883.

SHINGLING HATCHETS.

CAST STEEL. WARRANTED.

Nos.	Size.	Weight.	Width of bit,	Dcz. Price.
590	0.	13 oz	$3\frac{1}{4}$ in.	\$7.50
591	1	1 lb, 1 oz.	$3\frac{1}{2}$ in.	8.00
592	2°	1 lb. 7 oz	4 jn.	8.50
593	3	1 lb. 13 oz.	$4\frac{1}{2}$ in.	9.00
594	4	2 lb. 3 oz.	$4\frac{3}{4}$ in.	9.50

Weights donot include handles

HALF HATCHETS.

LATH HATCHETS.

No	1 5	2 3	No					
Length of cut, inch .		$2\frac{3}{4}$ 3	Length of cut,	inch		$3\frac{1}{4}$	$3\frac{3}{4}$	41
Per dozen		50 9.00	$\operatorname{Per} \operatorname{dozen}$		4	\$8.50	9.00	9.50

CLAW HATCHETS.

SOLID CAST-STEEL.



Width
of Per
Nos, Size. Weight, Bit. Doz.

510 1 1 lb. 3 oz. 3½ in, \$11.50 511 2 1 lb 9 cz 4 in. 12.00

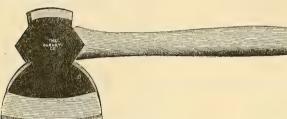
512 3 1 lb. 15 oz. $4\frac{1}{2}$ in. 12 50

Fig. 884.

Weights do not include handles.

OCDEN CLAW HATCHETS.

No.						1	2	3
	•	•	-			93	27	43
Length of cut, inch		•		6		$\partial \widehat{\mathbf{z}}$	3 §	48
Per dozen						\$9.00	9.50	10.00
T GI GOVETI					•	Ψο,οο		



BROAD HATCHETS.

CAST-STEEL.

Fig. 885.

		T.	ig. 660,	*					
Nos.	,	2240	2241	2242	2243	2244	2245	2246	2247
Size		1	2	3	4	5	6	7	8
Wain	h.k. e	1 lb.	1 lb.	2 lb.	2 lb.	2 lb.	3 lb.	3 lb.	4 lb.
Weig	nt · .	8 oz.	12 oz.	2 oz.	8 oz.	14 oz.	4 oz.	12 oz.	4 oz.
Widt	h of bit	4 in.	$4\frac{1}{2}$ in.	5 in.	$5\frac{1}{2}$ in.	6 in.	$6\frac{1}{2}$ in.	7 in.	$7\frac{1}{2}$ in.
Per d	oz	\$10.50	$1\tilde{1}.50$	13.00	14.50	16.50	18.00	19.50	22.00
			Weight	ts do <i>not</i>	include l	handles.			





	CAST-STEEL'.	•
Nos.	Assorted.	Per Doz.
680	5 to $6\frac{1}{2}$ lb.	\$32.00
681	6 to 7 lb.	32.00
682	$6\frac{1}{2}$ to $7\frac{1}{2}$ lb.	32.00
683	7 to 8 lb.	35.00
684	$7\frac{1}{2} \text{ to } 8\frac{1}{2} \text{ lb.}$	35.00
685	7 to 9 lb.	35.00
686	8 to 9 lb.	38.00
687	$8\frac{1}{2}$ to $9\frac{1}{2}$ lb.	38.00
688	8 to 10 lb.	38.00

Weights assorted as wanted.

	TERN PAT								TERN.	
$5\frac{1}{2}$ to 7 lbs. P	er dozen		\$32.00	5 to	7 lbs.	Per	doze	\mathbf{n}		\$32.00
_	PENNS	LVAN	A OR	PITTSB	URCH	PAT	TER	N.		
6 to 7½ lbs.	Per dozen								۰	\$32.00
Cut illustrates New York pattern.										

BEST CAST-STEEL AXES.







WESTERN. Fig. 888.



KENTUCKY. Fig. 889. .

3 to 4, $3\frac{1}{4}$ to $4\frac{1}{4}$, $3\frac{1}{2}$ to $4\frac{1}{4}$ pounds, per dozen $3\frac{3}{4}$ to $4\frac{3}{4}$, 4 to 5, $4\frac{1}{4}$ to $5\frac{1}{4}$... 5 to 6

HANDLED AXES.

Fig. 890.

 $3\frac{1}{2}$ to $4\frac{1}{2}$, 4 to 5 pounds, per dozen . . . \$16.50 17.00 45 to 55 20.00 Solid Steel, $3\frac{1}{2}$ to $4\frac{1}{2}$, 4 to 5 pounds, per dozen

HUNTERS' HANDLED CAST-STEEL AXES.

Nos. 670 671

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4)

Weight. Size. 1 lb. 8 oz. 1 lb. 12 oz.

Weights do not include handles.

Per Doz. \$10.00 11.00

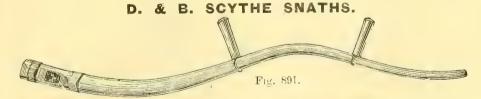




Fig. 892



Fig. 893.

1

2

Iron

85.

Fig. 895.

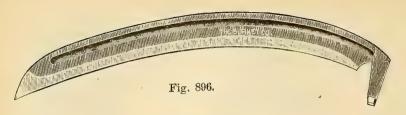
9.50

Fig. 894.

PATENT LOOP BUSH.

No. 75. Brass Trimmed, per doz. . \$10.00

DOUBLE RING BUSH. No. 100. Iron Trimmed, per doz. . \$12.50 No. 105. Iron Trimmed, per doz. . \$13.50



CRASS
AND
WEED
SCYTHES.



BUSH SCYTHES.

CRASS SCYTHES.

No 23. Clipper, Polished Web,	•
nor dozen	,
No. 22. Clipper, Bronzed Web, per	
dozen	
No. 26. Dutchman, per doz 8.50	<i>)</i>
One dozen in a box. Lengths, 24 to	,
42 inch. Stock assortments, 32 to 36 inch, 36 to	3

42 inch. Stock assortments, 32 to 36 inch, 36 to 40 inch, 38 to 42 inch.

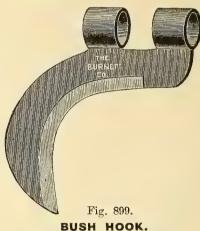
WEED SCYTHES.										
No. 52.	Red,	Cast St	teel, p	er do	z. \$8.22					
" 052.										
per do	\mathbf{z} .		•		. v.00					
BUSH SCYTHES.										
No. 50. 1	Red or	Green	, Cast	Stee.	l,					
per do	z		: :		. 8.22					
No. 050.	R. &	M., G	erman	Stee	ıl,					
per do	Z				0.00					
, 1	Half d	ozen in	a bun	dle.						



BUSH HOOK AXE HANDLE.

Ca	S	t	\mathbf{S}	teel.	
		-			

Nos.	Weight.	Per Doz.
790	Light.	\$14.50
791	Medium.	15.00
792	Extra Heavy.	17.00
	Price includes handle	



BUSH HOOK.
Two Rings, Cast Steel.
No. 810, per doz. . . . \$14.00

CRUB HOE.

Best Refined Iron and Steel Bits.

Nos 182

Nos.	Size.	Average Weight.	Size Hoe.	Per Doz.
1820	0	3 lbs.	$10\frac{1}{2} \times 3\frac{1}{2} \text{ in.}$	\$10.50
1821	1	$3\frac{1}{2}$ lbs.	$10\frac{3}{4} \times 3\frac{3}{4} \text{ in.}$	11.00
1822	2	$\frac{1}{4}$ lbs.	$11\frac{1}{4} \times 4$ in.	11.50
1823	3	44 lbs.	$11\frac{1}{2} \times 41$ in.	12.00

Fig. 900.



LONG AND SHORT CUTTER.

Fig. 901.

Best Refined Iron and Steel Cutters.

	Nos.	Average Weight.	Size Hoe.	Size Cutter.	Per Doz.					
Long Cutter,	1790	6 lbs.	$8\frac{1}{2} \times 4\frac{1}{4} \text{ in.}$	$6 \times 3\frac{1}{2} \text{ in.}$	\$16:00					
Short "	1800	$5\frac{1}{2}$ lbs.	$8\frac{1}{4} \times 4\frac{1}{4} \text{ in.}$	$4\frac{1}{2} \times 3\frac{1}{2} \text{ in.}$	15.50					
LIGHT PATTERN,										

Fig. 901.

•	Nos.	Average Weight.	Size Hoe.	Size Cutter.	Per Doz.
Long Cutter,	2040	5 lbs.	$8\frac{1}{4} \times 3\frac{1}{2} \text{ in.}$	$5\frac{3}{4} \times 3 \text{ in.}$	\$15.00
Short "	2050	5 lbs.	$8\frac{1}{4} \times 3\frac{1}{2} \text{ in,}$	$4\frac{1}{2} \times 3 \text{ in.}$	15.00

MATTOCK PICK.

Fig. 902.

Best Refined Iron with Steel Point and Cutter,

Size Hoe. No. Average Weight. Size Pick End. Per Doz. 1810 6 lbs $8\frac{1}{2} \times 4\frac{1}{4}$ in. $8\frac{1}{2}$ in. \$16.00

Fig 902.

Fig. 901.

STONE OR BALLAST FORK.

Solid Steel Shanks, Patent Solid Ends, Strapped Capped Ferrules.



Fig. 903.

Number of Tines .	•		8		10	1%	3	14		
Length " " inche	es.		15		15	18	ŏ	15		
Per dozen			\$20.00) ;	25.00	30.0	00	33,00		
		COKE	FOR	KS.						
Number of Tines .		10	12	12	14	14	16	16		
Length " " inche	es .	$17\frac{1}{2}$	$17\frac{1}{2}$	$17\frac{1}{2}$	$17\frac{1}{2}$	18-	$17\frac{1}{2}$	$17\frac{1}{2}$		
Width of Forks, "		$14\frac{1}{2}$	18	16	18	$20\frac{1}{2}$	18	$19\frac{1}{2}$		
Per dozen		\$24.00	28.00	28.00	33.00	33,00	40.00	40.00		
To get width of Fork measure across at the centre.										

TANNERS' FORKS.

OVAL BRIGHT.

Number of Tines						10	12
Per dozen .	•	4				\$26.00	30.00
			055				

BURNET COMPANY, NEV



CARPENTERS' FULL HEAD, STEEL POLES.

No. Width of PerDoz.
750 4½ to \$24 00



CARPENTERS' HALF HEAD, STEEL POLES.

No. Width of PerDoz. 740 3\frac{1}{2} to \quad \text{\$\frac{3\frac{1}{2}}{4\frac{1}{2}}\$ in. \$\frac{\$24.00}{\$}

Fig. 905.

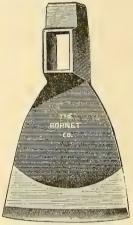
Fig. 904.

RAILROAD ADZES.



RAILROAD, FULL HEAD, STEEL POLES.

No. Width of Per Doz Cut. Per Doz 770 5 to 5\frac{1}{2} \\$26.00 771 5\frac{3}{4} \text{ to 6} \frac{2}{2}7.00

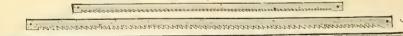


RAILROAD,HALF HEAD, STEEL POLES.

No. Width of Per Doz. 760 5 to 5 \$26.00 761 5 \$4 to 6 27.00

Fig. 907

FELLOE WEBS, THIN BACKS.



Length,		Inches	Per	Length,		Inches	Per
Inches.	Gauge.	Wide.	Dozen.	Inches.	Gar	ige. Wide.	Dozen.
6 .	19	$\frac{3}{16}$ to $\frac{1}{2}$	\$1.30	22	.]	$\frac{1}{4} \text{ to } \frac{3}{4}$	\$3.30
7 .	19	$\frac{3}{16}$ to $\frac{1}{2}$	1.35	24	.]	$\frac{1}{4} \text{ to } \frac{7}{8}$	3.65
8 .	19	$\frac{3}{16}$ to $\frac{1}{2}$	1.45	26	. 1	17 4 to 3	4.00
10 .	18	$\frac{3}{16}$ to $\frac{1}{2}$	1 60	28	. 1	17 \(\frac{1}{4}\) to 1	4.40
12 .	18	4 to 2	1.85	30	. 1	16 \(\frac{1}{4}\) to 1	4.80
14 .	17		2.10	32	. 1	16 \(\frac{1}{4}\)\to 1 \(\frac{1}{4}\)\to 1	5.20
16 .	17	1 to 1 to 5	2.35	34		16 \frac{1}{4} \to 1	5 .60
18 .	17	$\frac{1}{4}$ to $\frac{5}{8}$	2.70	36		$16 \frac{1}{4} \text{ to } 1$	6.00
20 .	17	$\frac{1}{4} \text{ to } \frac{3}{4}$	3 00				

One extra gauge in thickness, no extra charge. Five per cent. extra for each additional gauge to 14 gauge. Above 14 gauge, special prices. Extra widths, 10 per cent. for each additional $\frac{1}{8}$ inch wide.

N. B. All Web Saws $\frac{1}{8}$ inch and narrower will be made with wide ends, in order to give strength at the hole. Price, 25 per cent. advance.

STARRETT HACK SAW BLADES.

Length, inches			6	7	8	9	10	11	12	14	16
Width, inches	٠		77 <u>6</u>	7 7 g	76	2	1/2	2	5/8	<u>5</u> 8	$\frac{\frac{5}{8}}{13}$
Number of Teeth	٠	•	15	15	15	15	15	15	13	13	
Per dozen .	٠	•	\$0.55	.60	.65	.70	.85	.95	1.05	1.25	1 50 .
STUBS HACK SAW BLADES.											
Length, hole to ho	le,	inches		4	6	8	10	12	13	14	16
Per dozen .			. 8	\$1.50	2.00	3 00	4.00	5.00	5.50	6.00	8.00

STAR HACK SAW BLADES.



			Assorted.						
Length of Blade		6	7	8	9	10	11	12	6 to 9
Price, per dozen		\$0.55	.60	.65	.70	.85	.95	1.05	.65

The blades in the above list are standard goods, with 14 teeth to the inch. We also furnish the 8, 9, 10, 11 and 12 inch blades with 23 teeth to the inch, for cutting tubing and thin sheets of metal, the prices of each kind being the same. In filling orders, we shall always put in the coarse blades, unless the fine ones are particularly named.

PATENT STAR HACK SAW FRAMES.

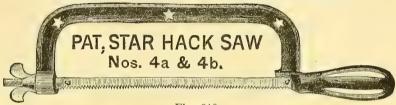


Fig. 910.

This No. 4 is a Patent Cast Iron Frame, and so constructed as to face blades in four different directions. It is a very stiff and desirable Frame with Japan finish.

No. 4A, for 8-inch blades Per dozen, \$3.00 No. 4B, for 9-inch blades 3.00

PATENT STAR HACK SAW



Fig. 9 1.

No. 2, solid Frame. To hold 8-inch blades only, and face them in four directions. Polished and nickel-plated. Cocobola handle. Price, Per dozen, \$8.40.

EXTENSION STAR SAW



Fig. 912.

It is light and quickly adjusted, having strength in the middle, where strength is needed. It is made of tempered steel, polished and nickel-plated. The handles are Cocobola wood, highly finished. It carries blades 6, 7, 8, 9, 10, 11 and 12 inches long, and is marked for the different lengths. Price,

JENNINGS' HAND PANEL RIP SAWS.

Fig. 913

Patent Ground and Tempered, Hand Hammered and Hand Filed, and set ready for use. They are fully warranted We will exchange them if found defective in any particular. These Saws are made from Extra Refined Spring Steel, Polished Blades, Taper Ground, Thin Back, Carved and Polished Apple Handles. Four Improved Brass Screws; 28 and 30 inch have five Improved Brass Screws.

Size, inch 16 20 22 26 30 18 Per dozen . \$14.50 16.00 17.50 19 50 21.00 22.00 25.00 28.00

HAND, PANEL AND RIP SAWS.

Disston's

No. D8.



5 Improved

Screws.

Fig. 914.

SKEW BACK, SPRING STEEL WARRANTED, APPLE HANDLE, POLISHED EDGE, PATENT GROUND AND TEMPERED.

22Length, inches 16 18 20 2426 28 30 Per dozen \$18.00 20.00 22,00 24.0026.00 28.00 32,00 37.00

No. 7.

Improved

Screws.

Fig. 915.

BEECH HANDLE, POLISHED EDGE, GRAINED BLADE, CAST-STEEL, WARRANTED.

Length, inches . 14 16 18 20 22 24 26 28 30 Per dozen . . \$12.00 13.00 14.00 16.00 18.00 19.00 20 00 23 50 27.00 All above Saws one-third dozen in a box.

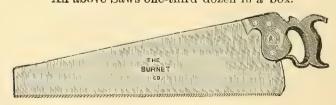


Fig. 916.

No. 1893. SKEW BACK, LONDON SPRING STEEL, APPLE HANDLE, CARVED AND POLISHED, 4 BRASS SCREWS, NICKEL-PLATED, REINFORCED PLATE, WARRANTED.

Length, inches 16 18 20 22 24 26 28 Per dozen \$14.50 15.50 16.50 18.50 20.00 21.00 24.00 One-third dozen in a box.

CIRCULAR SAWS.

Of Extra Quality, Superior Workmanship, and Guaranteed as per Warranty.

STANDARD GAUGE.

Exactly corresponds with the STUBB's English Gauge.

				Gaug	ge.			
73 8 9	Guage	No.	4			$\frac{1}{4}$	inch	scant.
6 0). 0 35.71	66	66	5			$\frac{7}{32}$	6.6	
74-55 () = 55 6	6.6	6.6	6			1.3	6.6	
	6.6	66	17	·	•	6 4 3 1 6	44	scant.
7 - Si sanda Schuck &	66	6.6	8	•	•	1 6	6.6	
TO TEFTH & CAN TO SET HE SEARCH TO SET TO SE			_	•	•	$\frac{-5}{3[2]}$		full.
1 2 600 1 000 5 6	4.4	6.6	9			$\frac{5}{32}$	66	scant.
14 90000	4.4	5.2	10			18	66	full.
10 4 John S	66	66	11			1/8	66	scant.
N 2 000	66	6.6	12	•	•	77	66	scant.
12 21	67	11		•	•	64		
The word						32	6.6	
61/1	66	6.6	14			5	66	full.
	6.6	6.6	15			_5	66	
Ein 017	4.6	+ 4			•	64	66	
rig. att.			10	*	•	16		ruil.
Fig. 917.			13 14 15 16	•		$ \begin{array}{r} $	66	full. scant full.

CIRCULAR SAW MANDRELS furnished with Pulleys on the end or in centre.

The above illustration represents the various styles and Nos. of Saw Teeth; also the Standard Gauge. By consulting it parties will be enabled to inform us the size and style of tooth, and also the gauge of any Saw they may desire.

Diameter, Inch.	Thickness, Gange.	Size of Hole.	Price, Each.	Extra for each Additional Gauge (Heavier).	Diameter, Inch.	Thickness, Gauge.	Size of Hole.	Price, Each.	Extra for each Additional Gauge (Heavier).
1	24	al-ial-is-bathathathal-al-abadhadha	\$0.50	\$0.01	32	10	15	\$20.00	\$1.00
11/2	24	3/8	.55	.01	34	9	18	22.50	1.20
2	23	3/8	.60	$.01\frac{1}{2}$	36	9	1홍	25.50	1.40
$2\frac{1}{2}$	22	38	.65	.02	38	9	$1\frac{5}{8}$ $1\frac{5}{8}$ $1\frac{5}{8}$ $1\frac{5}{8}$	30.00	1.75
3	21	$\frac{1}{2}$.70	$.02\frac{1}{2}$	40	9	2	35.00	2.00
$3\frac{1}{2}$	20	$\frac{1}{2}$.80	.03	43	8	2 2 2	42.00	2.50
4	19	3	1.00	.03	44	8	2	50.00	3,00
$\frac{4}{5}$	19	$\frac{3}{4}$	1 20	.04	46	8	2	60.00	3 50
6	19 18 18 18 17	<u>3</u>	1.40	.05	48	8	2 2 2	70.00	4 00
7	18	34	1.70	.06	50	7		80.00	4.50
8	18	$\frac{7}{8}$	2.00	.08	52	7	2	90.00	5.00
9		1 8	2 50	.10	54	7	2	100,00	6.00
10	16	1	3.00	.12	56	7	-2	115.00	7.00
11	16 15	1	3.50	.14	58	7	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	130.00	8.00
12	15	1	3.75	.17	60	6	2	145.00	9,00
14	15	$1\frac{1}{8}$	4.50	.21	63	6	2	160 00	10.00
16	14	$1\frac{1}{8}$	5.50	.25	64	6	2	180.00	12.00
18	13] 1/4	7.00	.30	66	6	2	200.00	15.00
20	13	$1\frac{5}{16}$	8.50	.35	68	5	2	225.00	18.00
22	12	$1_{\frac{5}{16}}$	10 00	.45	70	5	2	255.00	21.00
24	11	148-18-14-5-1-818-38-48-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	12.00	.55	72	5	2	290.00	24.00
26	11	$1\frac{3}{8}$	14.00	.65	74	5	2	330.00	27.00
28	10	$1\frac{1}{2}$	16 00	.80	76	5	2	375.00	30.00
30	10	$1\frac{1}{2}$	18,00	.90					

Grooving Saws, special prices. Circular Saws to cut Bone or Ivory, 50 per cent. advance. No extra charge for Saws one guage thicker than List. Circular Saws beveled one gauge without extra charge. When not otherwise specified, Saws will always be sent of above gauge and size of hole.

CROSS-CUT SAWS.



Fig. 918.

No. 1. Champion. 4 gauges thinner on back than on teeth . Per foot, \$0.60 0.54



Fig. 919.

Great American. 4 gauges thinner on back than on teeth . Per foot, \$0.68

CHAMPION TOOTH ONE MAN SAWS.

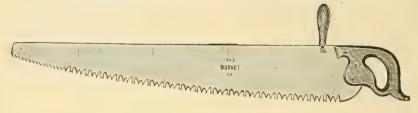


Fig. 920.

Feet	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	G
Each	\$2.25	2.60	3.00	$3.\bar{3}5$	3.70	4.10	4.45
	Plain Tr	uttle and T	enon tooth	same pri	ce as Cham	pion.	

CREAT AMERICAN ONE MAN SKEW-BACK SAWS.



Fig. 921.

Feet	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Each	\$2.64	3.08	3.52	$3.\overline{9}6$	4.40	4.84	5.28

PRICES FOR BAND SAWS.

Set, Sharpened and Joined Complete.

Width, inches.	2	24	3) 1 ~ 9	3	$3\frac{1}{9}$	4	43	5
Gauge	18	18	18	17	17	16	$\tilde{16}$	16
		10	10		1.6			
Price, per foot	\$0.50	.60	.65	.80	1.00	$1\ 20$	1.35	1.50
Width, inches .	$5\frac{1}{2}$. 6	7	8	9	10	11	12
Gauge	16	16	16	16	16	14 to 16	14 to 16	14 to 16
Price, per foot	\$1.65	1.80	2.15	2.50	3.00	3.50	4.20	5.00

When ordering, state whether to be set, sharpened and joined. Toothed blanks are same price as finished saws. Band Saw Blanks, either bright or black furnished to order, but are not warranted.

Band Saws of any Width, Length, and Tooth, Set, Sharpened and Joined Complete.

CROSS-CUT SAW HANDLES.

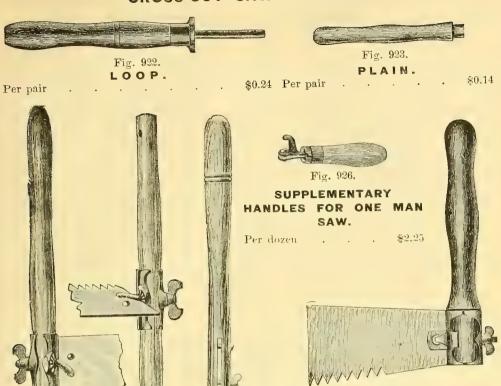


Fig. 924. CHAMPION.—Per pair, \$0.24.

Fig. 925.—Per pair, \$0.24.

Fi . 127. CLIMAX .- er pair, \$0.40. DANDY .- "

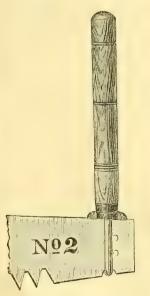
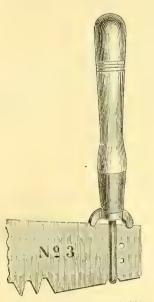


Fig. 928.—Per pair, \$0.28. Fig. 929.—Per pair, \$0.36.



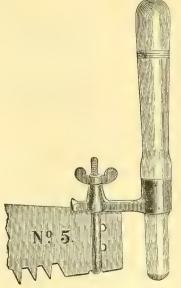


Fig. 930.—Per pair, \$0.40.

POLISHED HICKORY HANDLES.

		771 00				
		Fig. 93				
Longth inches	28	AXE HAN	32	34	36	38
Length, inches. Extra, per dozen	. \$2.00	2.85	$\frac{32}{2.85}$	3.20	3.20	3.50
Excelsior "	. 1.80	$\frac{2.00}{2.20}$	$\frac{2.00}{2.20}$	2.50	2.50	2.70
No. 1	1.50	1.70	1.70	$\frac{2.00}{2.15}$	2.15	2.15
No. 2	. 1.30	1.50	1.50	1.80	1.80	1.70
140, 2	OCTACON	AND OVAL		HAVED.	1.00	1.10
Length, inches	OUTAGON	32	34	36	38	40
XXX, per dozen		\$3.50	3.50	3.50	3.75	4.00
XX , Per dollar		3.00	3.00	3.00	3.00	3.50
X		2.20	2.20	2.20	2.20	2.30
Straight Lumberm	an's XXX			3.50	3.75	
"	XX			3.00	3.00	
Broad Axe B	Handles, No. 1	. 26-inch. pe	r dozen		. \$3.00	
		BITTED A		LES.	***************************************	
		B				
E-72		D				
		Fig. 932				
Length, inches				0 0	34	36
Extra, per dozen					\$3.20	3.20
Excelsior "					2.50	2.50
No. 1				• •	$\frac{2.10}{2.10}$	2.10
		PICK HAND	DLES.	•		
		3				
		, B.				
		Ti				
		Fig. 933		Evtra	Evler No 1	No 2
Pick Handles—Surfac	e or R. R., 36 i	neh.		Extra. \$4.50	Exler. No. 1, 3.50 2.50	
Pick Handles—Surfac	ıg, 32, 34 and 3	nch, 6 inch	Per doz.	\$4.50 3.50	Exler. No. 1, 3.50 2.50 3.00 2.10	No. 2. 1.80
Driftin	ng, 32, 34 and 3 2, 34 and 36 inc	nch,	Per doz.	\$4.50 3.50 3.50	3.50 2.50 3.00 2.10 3.00 2.10	1.80
Driftin	ıg, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E	nch,	Per doz.	\$4.50 3.50 3.50 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50	1.80
or Poll, 3:	ng, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50	1.80 1.25 1.25
Coal M	ng, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50	1.80
Coal M	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50	1.80 1.25 1.25
Coal M	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50	1.80 1.25 1.25
CARPE	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50	1.80 1.25 1.25
CARPE Length, inches	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50	1.80 1.25 1.25
CARPE Length, inches Extra, per dozen	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch bh ye, $3x_{3}^{5}$, 34 inc Eye, $3x_{4}^{3}$, 34 inc ye, $3x_{5}^{1}$, 34 inc AND RAIL	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES.	1.80 1.25 1.25 1.25
CARPE Length, inches Extra, per dozen Excelsior "	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch bh ye, $3x_{3}^{5}$, 34 inc Eye, $3x_{4}^{3}$, 34 inc ye, $3x_{5}^{1}$, 34 inc AND RAIL	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES.	1.80 1.25 1.25 1.25
CARPE Length, inches Extra, per dozen	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch bh ye, $3x_{3}^{5}$, 34 inc Eye, $3x_{4}^{3}$, 34 inc ye, $3x_{5}^{1}$, 34 inc AND RAIL	Per doz.	\$4.50 3.50 3.50 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES.	1.80 1.25 1.25 1.25 1.25
CARPE Length, inches Extra, per dozen Excelsior " No. 1 "	ng, 32, 34 and 3 2, 34 and 36 inc Inners' Small E Medium Large E	nch, 6 inch bh ye, $3x_3^5$, 34 incl Eye, $3x_3^3$, 34 incl ye, $3\frac{1}{8}x_3^2$, 34 incl AND RAIL Fig. 934.	Per doz. "" neh " PROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10	1.80 1.25 1.25 1.25 34 4.00 3.50
CARPE Length, inches Extra, per dozen Excelsior " No. 1 "	ig, 32, 34 and 3 2, 34 and 36 inc Iiners' Small E Medium Large E	nch, 6 inch bh ye, $3x_3^5$, 34 incl Eye, $3x_3^3$, 34 incl ye, $3\frac{1}{8}x_3^2$, 34 incl AND RAIL Fig. 934.	Per doz. "" neh " PROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10	1.80 1.25 1.25 1.25 34 4.00 3.50
CARPE Length, inches Extra, per dozen Excelsior " No. 1 "	ng, 32, 34 and 3 2, 34 and 36 inc Inners' Small E Medium Large E	nch, 6 inch bh ye, $3x_3^5$, 34 incl Eye, $3x_3^3$, 34 incl ye, $3\frac{1}{8}x_3^2$, 34 incl AND RAIL Fig. 934.	Per doz. "" neh " PROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10	1.80 1.25 1.25 1.25 34 4.00 3.50
CARPE Length, inches Extra, per dozen Excelsior " No. 1 "	ng, 32, 34 and 3 2, 34 and 36 inc Inners' Small E Medium Large E	nch, 6 inch	Per doz. "" neh " PROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10	1.80 1.25 1.25 1.25 34 4.00 3.50
CARPE Length, inches Extra, per dozen Excelsior No. 1 NAPP	ag, 32, 34 and 3 2, 34 and 36 inc liners' Small E Medium Large E INTER, SHIP	nch, 6 inch	Per doz. "" h, "" hch " ROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.4	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10	1.80 1.25 1.25 1.25 1.25 34 4.00 3.50 2.10
CARPE Length, inches Extra, per dozen Excelsior " No. 1 " NAPP Length, inches.	ag, 32, 34 and 3 2, 34 and 36 inc liners' Small E Medium Large E INTER, SHIP	nch, 6 inch	Per doz. "" h, "" hch " ROAD AD	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30 2.30 2.30	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10 LES.	1.80 1.25 1.25 1.25 1.25 1.25
CARPE Length, inches Extra, per dozen Excelsior No. 1 NAPP Length, inches. Extra, per dozen	ag, 32, 34 and 3 2, 34 and 36 inc liners' Small E Medium Large E INTER, SHIP 24 & 26 \$1.25	Rig. 934. Fig. 935. 28 & 30 1.60	Per doz. "" " " " " " " " " " " " " " " " " "	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.3	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10 LES.	1.80 1.25 1.25 1.25 1.25 1.25 4.00 3.50 2.10
Length, inches Extra, per dozen Excelsior No. 1 Length, inches Extra, per dozen Excelsior No. 1 NAPP	24 & 26 \$1.25 1.00	Rig. 934. Fig. 935. 28 & 30 1.60 1.25	Per doz. "" " " " " " " " " " " " " " " " " "	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.2E HAN 34 & 36 2.10 1.75	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10 LES. 38 2.25 1.80	1.80 1.25 1.25 1.25 1.25 1.25 1.25 2.10
Length, inches Extra, per dozen Excelsior No. 1 NAPP Length, inches Extra, per dozen Excelsior No. 1 NAPP	24 & 26 \$1.25 1.00 75	Fig. 934. 28 & 30 1.60 1.25 1.00	Per doz. "" " " " " " " " " " " " " " " " " "	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.10 1.75 1.20	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10 LES. 38 2.25 1.80 1.35	1.80 1.25 1.25 1.25 1.25 1.25 4.00 3.50 2.10
Length, inches Extra, per dozen Excelsior No. 1 NAPP Length, inches Extra, per dozen Excelsior No. 1 NAPP	24 & 26 \$1.25 1.00	Fig. 934. 28 & 30 1.60 1.25 1.00	Per doz. "" " " " " " " " " " " " " " " " " "	\$4.50 3.50 3.50 2.30 2.30 2.30 2.30 2.10 1.75 1.20	3.50 2.50 3.00 2.10 3.00 2.10 1.80 1.50 1.80 1.50 1.80 1.50 DLES. 32 \$4.00 3.50 2.10 LES. 38 2.25 1.80 1.35	1.80 1.25 1.25 1.25 1.25 1.25 1.25 2.10

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POLISHED HICKORY HANDLES.

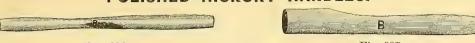


Fig. 936.

Fig. 937.

HAMMER	HANDLE.						н	ATC	HET	HA	NDLE	Ξ.	
Length, inches		11	12	13	14	15	16	17	18	19	20	22	24
Machinists' Hammer	. Per doz.	60	60	60	60	60	70	70	80	85	90	95	1.05
Blacksmiths' Hammer		60	60	60	60	60	70	70	80	85	90	95	1.05
Riveting Hammer .		60	60	60	60	60	70	70	80	85	90	95	1.05
Hammer, A. &. R. E.			60	60	65	65							
Hatchet, Broad or Ben	ch, ':						70	75	95	1.00	1.00		
Shingle			60	60	65	65							
	Handles	pac.	ked i	n 2 tc	12 d	lozen	case	s.					

"D" HANDLES.



Shovel, \$3.25. Spade, \$3.35. . . Fork, \$3.00 per dozen FILE HANDLES.

No.

Brass Ferrules. 50, Soft Wood, assorted, per gross . . . 51, " "

\$4.00 " Large, per gross . 4.50 Quarter gross in a box.

Fig. 939.



SOLDERING COPPER HANDLES.

With Wire Ferrules.

Per gross \$5.25

Fig. 940. CAST-STEEL DIVIDERS. Made of the Best Material.

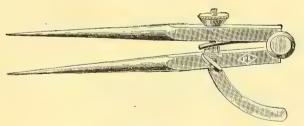


Fig. 941.

10 12 18 24 Size, inches, 5 Per dozen, \$5.50 7.50 12.0018.00 25.0036.00 9.00 10.00 6.50 5.50

CAST-STEEL COMPASSES.

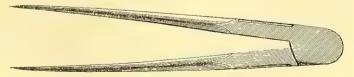


Fig. 942.

12 10 6 5 Size, inches . 12.00 13.00 10.75 4.00 $4.75 \quad 5.50$ \$3.12 3.50 Per dozen Dividers and Compasses half dozen in a box.

SWAN'S PATENT SCREW-DRIVERS. WITH STRONG MALLEABE IRON FERRULES.

All superior quality and fully warranted.

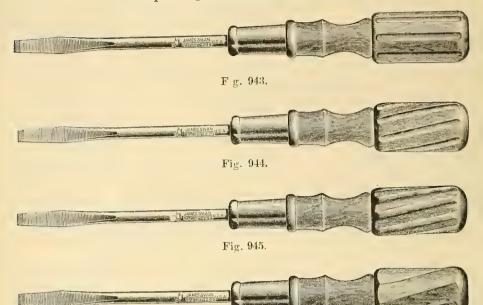


Fig. 946.

All the above same lists.

Size, inches . $2\frac{1}{2}$ 3 4 5 6 7 8 9 10 12 Per dozen . \$3.00 3 50 4.25 5.00 6.00 7.00 8.00 9.00 10.00 12.00

SWAN'S PATENT SCREW-DRIVERS.

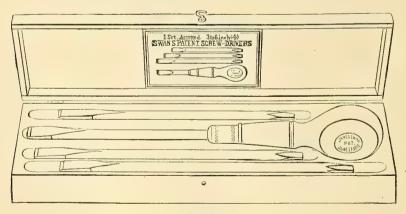


Fig. 947.

EXTRA SCREW DRIVER BITS.



Fig. 948.

Per dozen, No. 2

\$1,50

IMPROVED SCREW DRIVER BITS.

Width of Blades, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ inch. Made from extra quality of Steel and carefully tempered. Full polished.



Fig. 949.

SCREW DRIVERS.

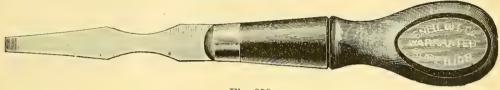


Fig. 950.

Flat Blade, Ebonized Handle, Nickeled Ferrule. Made of Fine Grade Steel.

Size, inches . 2 3 4 5 6 7 8 10 12 Per dozen . \$2.00 2.50 3.00 3.50 4.00 5.00 5.50 8.50 9.50



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2

Fig. 951.

Ebonized Handle, Nickeled Ferrule. Forged from a fine quality of Steel. Warranted. Size, inches . 3 5 6 10 12 4 4.00 Per dozen \$2.50 3.00 4.50 5.00 5.50 8.50 9.50



Fig. 952.

Best Forged Cast-steel Blade. Warranted. Round Handle, Nickeled Ferrule. Size, inches: 3 5 6 10 12 Diameter \$3.00 6 50 10.00 4.20 4.80 Per dozen 3.60

RACHET SCREW DRIVER.

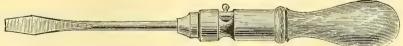
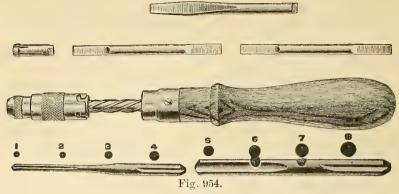


Fig. 953.

AUTOMATIC SCREW DRIVERS.



Has a patent revolving sleeve which the left hand grasps when the tool is working. While this sleeve is a great advantage in driving screws, it also enables the tool to be used as an automatic drill. The only additional expense is for the drill points. There is also a locking device which prevents the screw driver from falling out of engagement when held perpendicular. All the metal parts are highly polished and heavily nickel plated. The handle is of Cocobola. Full length, extended, 17 inches. The three screw-driver bits which go with each tool are 4 inches long, and made to fit screws of varying sizes.

Price of No. 11, without Drill Points, but with 3 screw driver bits, per doz., \$15.00
" 12, with 8 Drill Points and 3 screw driver bits, " 12.00

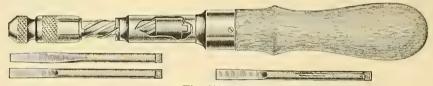


Fig. 955.

WITH CAST INTERCHANCEABLE METAL NUT.

Price, No. 20, with 3 Screw Driver Bits, 9 in. long, 13 in. extended, per doz, \$12.00 " 21, " 10 " 14.00

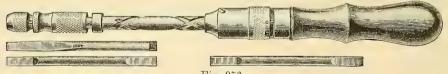
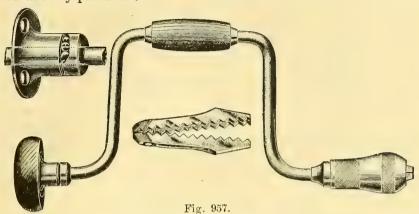


Fig. 956.

This cut represents our latest and best Reversible Screw Driver. One of the grooves being deeper cut than the other, preserves the entire individuality of each. It is simple in construction and simple to operate, the mere turning of the shell near the handle shifting the movement from right to left, or vice versa. By turning the shell half way it locks the spiral so that it can be used as an ordinary driver, and at different lengths. With each tool we put up three bits, two of them double end, giving five points in all.

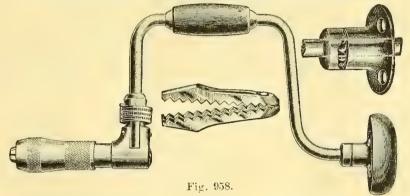
BARBER IMPROVED BRACES.

These Braces possess the following points of superiority: The Sweep is made from Steel. The Jaws are forged from Steel. The Wood Handle has brass rings inserted in each end so it cannot split off. The Chuck has a hardened Steel antifriction washer between the two sockets, thus reducing the wear. The head has a bearing of steel balls, running on hardened steel plates, so no wear can take place, as the friction is reduced to the minimum. The Brace is heavily Nickel-plated and warranted in every particular.



	Per Doz.			Per Doz.
No. 10, 14 inch sweep	\$33,00	No. 13, 8 inch sweep	,	\$24.00
" 11, 12 "	30.00	" 14, 6 "		21.00
" 12, 10 "	27.00	' 15, 4 ''		20.00

BARBER IMPROVED RATCHET BRACES.



]	Per Doz.			Per Doz.
No.	30, 14 in	nch sweep		\$42.00	No. 33, 8 inch sweep		\$33,00
66	31, 12	66		39.00	" 34, 6 "		30.00
66	32 10	64		36.00			

PATENT UNIVERSAL ANGULAR BIT STOCK.

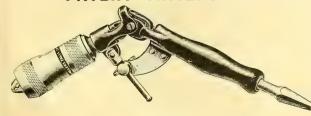


Fig. 959.

267

To be used in connection with a Brace and a Bit for boring holes in places where the Brace and Bit alone could not be used.

Per dozen, \$24.00.

THE BURNET COMPANY, NEW

BARBER IMPROVED PATENT BRACE.

These Braces are intended to occupy a place midway between the highest and lowest price Grip Braces. They are made of steel, polished but not nickel-plated. The heads and handles are stained in imitation of Cocobola. They also have the new anti-friction steel collar. The threads are all lathe-cut, and all parts of the Brace are made for durability.

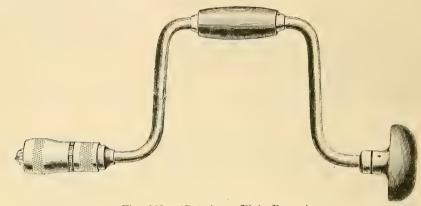


Fig. 960. (Cut shows Plain Brace.)

No.						No.					
21,	Plain,	12 in.	sweep,	per doz.,	\$11.00	122,	Ratchet,	10 in.	sweep, pe	r doz.,	\$18.00
22,	6.6	10	66	66	10.00	123,	6.6	8	66	66	17.00
	6.6			6 6	9.00						

BARBER BRACES.

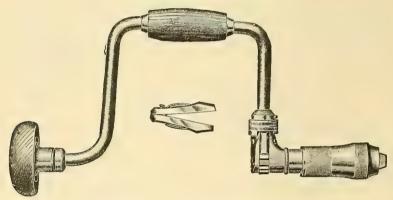


Fig. 961. (Cut shows Ratchet Brace.)

No.						No.						
222,	Plain,	10	inch,	per doz.,	\$5.35	322,	Ratchet.	10	inch,	per d	Z.,	\$10.40
223.	6.6	8	6 6	46	4.75	323,	66	8	6.6	- 44		9.75

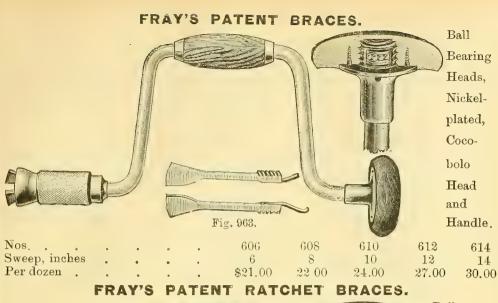
BARBER EXTENSION BIT HOLDER.

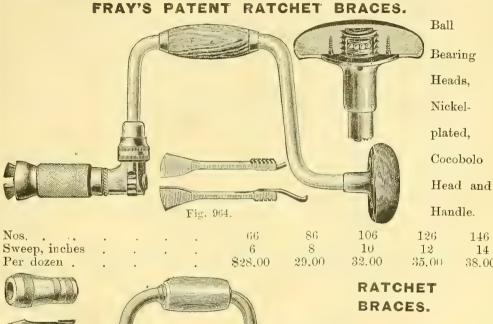


Fig. 962.

12	15	1.8	91	and	91	inal	200
1 6/4	1 020	10.		аши	2,64	1111111111	168

Price, all lengths, per dozen, \$15.00





Maple Head and Handle, No. 129. 10-inch Steel Sweep,

Fig. 965.

Per dozen, \$14.00.

146

14

38.00

NICKEL-PLATED STEEL SWEEP, BLACK WALNUT HEAD AND HANDLE. No. 179. 10-inch sweep, per dozen \$18.00 12-inch No. 181. 22.06 All above & dozen in a package.

IMPROVED BORING MACHINES.

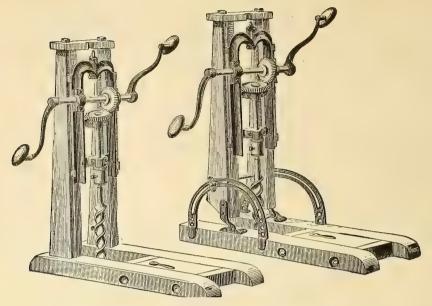


Fig. 966. Nos. 3, 4 and 5. Fig. 967. Nos. 1 and 2.

These Machines are we'll made and warranted to bore true. They are offered as the Best Wood Frame Machine in the Market.

PRICES, WITHOUT AUGERS.

Fig.	967, No. 1.	Angular,	Polished	Gear,			Each,	\$10.00
	967, No. 2.		6.6	6.6			66	6.75
66	966, No. 3.	Upright.	Polished	Gear,			66	8.50
	966, No. 4.	1 '',	66	66			6.6	7.50
66	966, No. 5.	. 6	. 66	6.6			66	5.50

BORING MACHINE AUGERS.



Fig. 968.

Size, Inches, Per Dozen,		\$10.00	10.00	10.00	$\frac{\frac{1}{2}}{10.00}$	$\frac{\frac{5}{8}}{10.00}$	$10^{\frac{3}{4}}00$	10.00
Size, Inches, Per Dozen,		$^{1}_{\$12.00}$	$1\frac{1}{8}$ 13.00	$1\frac{1}{4}$ 14.00	$\frac{1\frac{3}{8}}{16.00}$	$\frac{1\frac{1}{2}}{17.00}$	$\frac{1\frac{3}{4}}{20.00}$	$\begin{array}{c} 2 \\ 24.00 \end{array}$

SINGLE TWIST BORING MACHINE SHIP AUGERS.



Fig. 969.

Size, Inches, $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$ $\frac{11}{8}$ $\frac{11}{4}$ $\frac{11}{2}$ $\frac{13}{4}$ $\frac{2}{1}$ Per Dozen, $\frac{1}{2}$ \$8.25 10.00 11.50 13.25 15.00 16.50 18.20 23.10 28.00 34.50 In Sets of 18 quarters, \$6.25; 23 quarters, \$7.75; 41 quarters, \$13.75. These Augers are designed for hard wood.

POWER MACHINE BITS. DOUBLE TWIST MACHINE BITS.



Fig. 970.

ACME POINT MACHINE BITS.

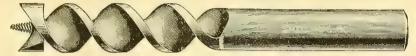


Fig. 971.

SHIP AUGER MACHINE BITS.



SINGLE TWIST MACHINE BITS.

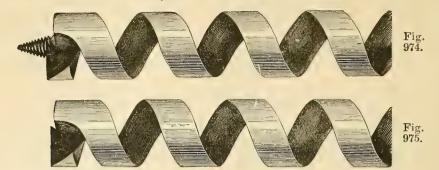


Fig. 973.

Size of Cut.		to 6 In.		to 9 In.	Twist 9		Twist 12 Lo	to 15 In ng.	Twist 15 to 20 In. Long.	
Size of Cut.	Per Dozen	Each	Per Dozen.	Each.	Per Dozen	Each.	Per Dozen,	Each	Per rozen.	Each.
4-16	\$6.00	\$0.55	\$6.60	\$0.60	\$7.20	\$0.65	\$7.80	\$0.70	\$8.40	\$0.80
5-16	6.50	.60	7.15	.65	7.80	.75	8.60	.80	9.10	.85
6-16	7.00	.65	7.70	.75	8.40	.80	9.10	.85	9,80	.90
7-16	8.25	.75	9.10	.85	9.90	.90	10.70	1.00	11.60	1.05
8-16	9.50	.85	10.50	.95	11.40	1.05	12.40	1.10	13.30	1.20
9-16	10.50	.95	11.50	1.05	12.60	1.15	13.70	1.25	14.70	1.35
10-16	11.50	1.05	12.65	1.15	13.80	1.25	15.00	1.35	16.10	1.50
11-16	12.50	1.15	13.75	1.25	15.00	1.35	16.25	1.50	17.50	1.60
12-16	14.00	1.25	15.40	1.40	16.80	1.50	18.20	1.65	19.60	1.75
13-16	15.50	1.40	17.00	1.55	18.60	1.65	20.20	1.80	21.70	1.95
14-16	16.75	1.50	18.50	1.65	20.10	1.80	21.80	1.95	23,50	2.10
15-16	18.00	1.60	19.80	1.75	21.60	1.95	23.40	2.10	25.20	2.25
16-16	19.50	1.70	21.50	1.90	23.40	2.10	25.40	2.20	27.30	2.40
17-16	21.00	1.85	23.10	2.05	25.20	2.25	27.30	2.40	29.40	2.60
18.16	22.50	2.00	24.75	2.20	27.00	2.35	29.25	2.60	31.50	2.75
19-16	24.00	2.10	26,40	2.30	28.80	2.50	31.20	2.75	33.60	2.95
20-16	25.50	2.25	28.00	2.50	30.60	2.70	33.20	2.95	35 70	3.15
21-16	27.00	2.35	29.70	2.60	32.40	2.85	35.20	3.05	37.80	3.30
22-16	28.50	2.50	31.40	2.75	34.20	3.00	37.00	3.26	40.00	3.50
23-16	30.00	2.60	33.00	2.85	36.00	3,15	39.00	3.35	42.00	3.60
24-16	31.50	2.75	34.70	3.00	37.80	3.30	41.00	3.60	44.10	3.85
25-16	33.00	2.85	36.30	3.15	39,60	3.40	43,00	3.70	46.20	4.00
26-16	34.50	3.00	38.00	3.30	41.40	3.60	45.00	3.90	48.30	4.20
27-16	36.00	3.10	39.60	3.40	43.20	3.75	46.80	4.05	50.40	4.35
28-16	37.50	3.25	41.25	3.55	45.00	3.90	48.75	4.25	52.50	4.55
29-16	39.00	3.35	43.00	3.70	46.80	4.05	50.70	4.40	54.60	4.70
30-16	40.50	3.50	44.50	3.85	48.60	4.20	52.70	4 55	56.70	4.90
31-16	42.00	3.60	46.25	4.00	50.40	4.35	54.60	4.70	58.80	5.05
32-16	43.50	3.75	48.00	4.15	52.20	4.50	56.60	4.90	61.00	5.25

Regular style Machine Bits 6 and 12-inch twist by ½-inch shank, common sizes, carried in stock.

SNELL'S SHIP AUCERS, WITH AND WITHOUT SCREWS.



They are so muished as to bore endwise or with the grain as readily as across it, or through the knottiest timber without swerving.

Size in 8ths. Price per doz.,		2 to 4 \$7.50	$rac{4 \text{ and } 4rac{1}{2}}{9.00}$	$\frac{5\frac{1}{2}}{10.50}$ and 6	$6\frac{1}{2}$ and 7 12.00	$7\frac{1}{2}$ and 8 13.50
Size in 8ths, Price per doz.,		$8\frac{1}{2}$ to 9 $$15.00$	9½ and 10 16.50	$10\frac{1}{2}$ and 11 18.00	$\frac{11\frac{1}{2} \text{ and } 12}{21.00}$	$12\frac{1}{2}$ and 13 24.00
Size in 8ths. Price per doz.,	<i>.</i>	$13\frac{1}{2}$ and 14 $$25.50$	$\frac{14\frac{1}{2}}{27.00}$ and $\frac{15}{27.00}$	$15\frac{1}{2}$ and 16 31.50	$16\frac{1}{2}$ and 17 48.00	$17\frac{1}{2}$ and 18 60.00
Size in 8ths, Price per doz,		$18\frac{1}{2}$ and 19 $\$72.00$	$19\frac{1}{2}$ and 84.0		96.00 21	$21\frac{1}{2}$ and 22 108.00
Size in 8th, Price per doz.,		22½ and 23 \$120.00	23½ and 132.0		9½ and 30 204.00	35½ and 36 276.00

SNELL'S SHIP AUCERS, WITH EXTRA LENGTH TWIST.

					LENGTE	H OF TWIST AS	ND PRICE PEI	R Dozen.	
S	ize in 8t	hs,		18 in.	20 in.	22 in.	24 in.	30 in.	36 in.
4.	and un	der,		\$9.60	\$11.52	\$13.44	\$15.63	\$17.28	\$19.20
$4\frac{1}{2}$				10.80	12.96	15.12	17.28	19.44	21.60
5				12.00	14.40	16.80	19.20	21.60	24.00
5_{2}^{1}				13.20	15.84	18.48	21.12	23.76	26.40
6				14.40	17.28	20.16	23.04	25.92	28.80
$6\frac{1}{2}$				15.60	18.72	21.84	24.96	28.08	31,20
7				16.80	20.16	23.52	26.88	30.24	33.60
73				18.00	21.60	25.20	28.80	32.40	36.00
8				19.20	23.04	26.88	30.72	34.56	38.40
$8\frac{1}{2}$				20.40	24.48	28.56	32.64	36.62	40.80
9				21.60	25.92	30.24	34.56	38.88	43.20
$9\frac{1}{2}$				22.80	27.36	31.92	36.48	41.04	45.60
10				24.00	28.80	33.60	38.40	43.20	48.00
$10\frac{1}{2}$				25.20	30.24	35.28	40.32	45.36	50.40
11				26.40	31.68	36.96	42.24	47.52	52.80
$11\frac{1}{2}$				27.60	33.12	38 64	44.16	49.69	55.20
12				28.80	34.56	40.32	46.08	51.84	57.60
$12\frac{1}{2}$				30.00	36.00	42.00	48.00	54.00	60.00
13			٠	31.20	37.44	43.68	49.92	56.16	62.40
$13\frac{1}{2}$				32.40	38.88	45.36	51.84	58.32	64.80
14			٠	33.60	40.32	47.04	53.76	60.48	67.20
$14\frac{1}{2}$				34.80	41.76	48.72	55.68	62.64	69.60
15				36.00	43.20	50.40	57.60	64.80	72.00
151				37.20	44 64	52.08	59.52	66.96	74.40
16				38.40	46.08	53.76	61.44	69.12	76.80

In ordering these goods be particular to state whether with or without Screws.

SNELL'S SHIP AUGER PATTERN CAR BITS.



Fig. 976.

TWELVE INCH TWIST.

Size in Sths	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$
Per doz.	\$8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00	12.50
Size in 8ths	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10	$10\frac{1}{2}$	11
Per doz	\$13.00	14.00	14.50	15.50	16.00	17.00	17.50	18.50	19.00
Size in 8ths		$11\frac{1}{2}$	12	$12\frac{1}{2}$	13	$13\frac{1}{2}$	14	$14\frac{1}{2}$	15
Per doz.		\$21.50	22.00	25.00	25.50	26.00	26.50	27.50	28.00

SNELL'S SHIP AUGERS WITH RINGS.

Size in 8ths Per doz.				-	$6\frac{1}{2} \text{ and } 7$ 13.20	$7\frac{1}{2} \text{ and } 8$ 14.85
Size in 8ths, Per doz.	-	-		-	$12\frac{1}{2} & 13$ 26.40	$13\frac{1}{2} & 14$ $28 05$
Size in 8ths Per doz.		& 15 29.70	$15\frac{1}{2} & 16$ 34.65	$16\frac{1}{2} & 17$ $52 80$	$17\frac{1}{2} & 18$ $66 00$	$18\frac{1}{2} & 19$ 79.20
Size in 8ths Per doz.	-	& 20 92.40	$20\frac{1}{2} & 21$ 105.60	$21\frac{1}{2} & 22$ 118.80	$22\frac{1}{2} & 23$ 132.00	$23\frac{1}{2} & 24$ 145.20
Size in Sths Per doz,					d 30 4.40	35½ and 36 303,60

These Augers are designed esp cially for boring hard wood. It ordering be particular to state whether wanted with or without screws

SNELL'S SHIP AUCER BITS.

WITH AND WITHOUT SCREWS.



Fig. 977.

Size in 8ths		2 to 4	$4\frac{1}{2}$ and 5	$5\frac{1}{2}$ and 6	$6\frac{1}{2} \text{ and } 7$
Per doz		\$6.00	7.50	9.00	10.50
Size in 8ths	•	$7\frac{1}{2}$ and 8	$8\frac{1}{2}$ ar	nd 9	$9\frac{1}{2}$ and 10
Per doz		\$12.00	13.	50	15.00

Ship Auger Bits in Sets—one each from 2 to 8 8ths . \$9.00 per set.

Fig. 978. Ship Auger.

TRENAIL AUGERS.

Size, inches	٠		1	1_{g}^{i}	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	2
Per dozen			\$12.00	12.00	13.50	15.00	16.50	22,00

Fig. 980.
MILLWRIGHT
AUGER.

SNELL'S JENNINGS' PATTERN CAR BITS. TWELVE INCH TWIST.

Size in 16ths,		4	5	6	7	8	9	10	11
Per Dozen,	,	\$6.00	6.80	7.60	8.80	9.60	10.40	11.20	12.20
Size in 16ths,		12	13	14	15	16	17	18	20
Per Dozen.		\$13,20	14 40	15,60	16.80	18.00	19.20	20.40	22.80

SNELL'S CAR BITS.

TWELVE INCH TWIST.

8 9 10 Size in 16ths, 4 5 6 11 Per Dozen, \$6.50 6.50 7.50 9.00 10.25 11.2512.75 13.25 Size in 16ths. 12 13 14 15 16 17 18 20 \$15.50 16.50 17.75 18.75 20.50 24.00 27.00 30.00 Per Dozen,

In sets of 21 quarters, \$9.50; in sets of 24 quarters, \$10.50; in sets of $32\frac{1}{2}$ quarters, \$14.00.

These Car Bits are used by all the large Car Manufacturers of the United States. They are superior to all others in quality, and enjoy the highest reputation.

SNELL'S SOLID CAST STEEL LONG MILLWRIGHT AUGERS.

Size in Inches,	$\frac{1}{2}$	1	6	<u>5</u> 8	$\frac{11}{16}$	$\frac{3}{4}$
Per Dozen, .	\$12.00	15.	00 1	5.00	18.00	18.00
Size in Inches,	$\frac{13}{16}$	$\frac{7}{8}$	$\begin{array}{c} 1.5 \\ 1.6 \end{array}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Per Dozen,	\$21.00	21.00	24.00	$24\ 00$	26 00	30.00
Size in Inches,	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2
Per Dozen,	\$36.00	38.50	41.00	42 00	45.00	48.00

In sets of 28 quarters, \$18.00; in 41 quarters, \$24.00. For Rings, add \$1.50 to list.

LONG RAFTING AUGERS.

Fig. 979, 12 INCH TWIST CAR BIT

SNELL'S SOLID CAST STEEL.

Size in Inches,		$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
Per Dozen,		\$27.00	30.00	36.00	42,00	50,00
Size in Inches,		$2\frac{1}{2}$	24	3	3	4
Per Dozen,	•	\$60,00	63.	00	70.00	84.00

SNELL'S SUPERIOR QUALITY EXTRA CAST-STEEL AUGER BITS.

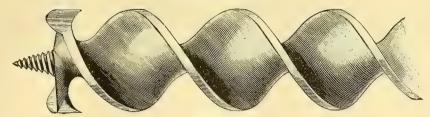
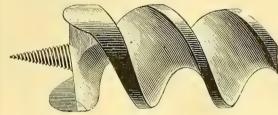


Fig. 981.

Size in 16ths.	3		4	5	6	7	8	9	10	11	12
Per dozen .	\$4.	00 3	3.50	3.50	3.75	3.75	4.00	4.25	4.50	5.00	5.50
Size in 16ths		13 .	14	15	16	17		18	20	22	24
Per dozen .		\$6.00	6.50	7.25	8.00	9.0	0 1	0.00	11.00	12.00	14 00

In Sets of 18 quarters, \$3.25; in Sets of 21 quarters, \$3.50; in Sets of 24 quarters, \$4.25; in Sets of 32\frac{1}{2} quarters, \$5.75.

SNELL'S RUSSELL JENNINGS' PATTERN AUGER BITS.



In Sets of 24 quarters, \$4.75.

In Sets of 323 quarters, \$6.25.

Fig. 982.

Size in 16ths.	3		4	5	6	7 8	9	10	11	12
Per dozen .	\$3.	.40 3	3.00	3.40	.80 4.	40 4.	5.20	5.60	6.10	6.60
Size in 16ths.		13	14	15	16	17	18	20	22	24
Per dozen .		\$7.20	7.80	8.40	9.00	9.60	10.25	11.50	12.60	14.50

BATES M'F'C CO. DOUBLE SPUR FIRST QUALITY AUGER BITS.



Patent Rolled Twist, Superior Cast-steel.

Fig. 983. Size in 16ths . 3 4 5 6 7 12 3.50 Per dozen . \$4.00 3.503 75 3.754.00 4.254.50 5.00 5.50 Size in 16ths . 13 14 15 16 17 18 20 22 24 \$6.00 7.258.00 6.509.00 10.00 11.00 12.00 14.00

In Sets of 18 quarters, \$3.25; in Sets of 21 quarters, \$3.50; in Sets of 24 quarters, \$4.25; in Sets of 32\frac{1}{2} quarters, \$5.75.

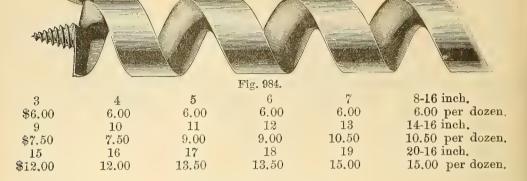
SNELL'S FIRST 'QUALITY SOLID CAST-STEEL CARPENTERS' NUT AUGERS.

Size in inches 3 11 1 11 13 $1\frac{3}{4}$ 6.00 7.00 8.00 Per dozen \$6.00 9.0010.00 11.00 12.00 15.00 15.00 18.00 Size in inches . 2 $2\frac{1}{8}$ $2\frac{1}{4}$ 21 $2\frac{3}{4}$ 3 31 $3\frac{1}{2}$ $3\frac{3}{4}$ 4 \$22.00 38.00 49.00 50.00 60.00 70.00 80.00 90.00 100.00 120.00 Per dozen

These Augers are ma ufactured of the Best Quality of Cast-steel and Warranted.

They are unequalled in quality and excellency of finish and manufacture.

C. E. JENNINGS' NEW PATTERN SINGLE TWIST AUGER BITS.



ASSORTED IN SETS.

6 Bits,		9 Bits, (1	each, 4, 5, 6, 7, 8
14 grs -		18 qrs. $\langle 1$	" 9, 10, 11, 12-16ths.
4 to 16-16ths.	Per set, \$3.36	4 to 12-16ths.	Per set, \$5.25
	13 Bits, (1 each	4, 5, 6, 7, 8,	9, 10
	$32\frac{1}{2}$ qrs. $\langle 1 $ "	11, 12, 13, 14, 15,	16-16ths.
	4 to 16-16ths.		

We will furnish these sets of Bits in Upright Model Bit Box or Birdseye Maple Bit Box, or in flexible Canvas Bit Roll, without extra charge. These Auger Bits are especially adapted for hard wood and end boring, and will bore equally well in soft wood. Every Bit is tested before leaving the factory and is fully warranted.

These Bits are packed in boxes of one-half dozen each.

DOUBLE-CUT CIMLET BITS.



Fig. 985.

All Tempered and Extra Finished.

No			0	1	2	3	4	5	6
Per dozen	٥		\$1.00	1.00	1.10	1.25	1.37	1.50	1.62

GERMAN PATTERN BITS.



Fig. 986.

Made from Best Cast-steel, Hardened and Tempered.

No. . . 2 3 4 5 6 7 8 9 10 11 12 Per dozen . \$1.00 1.10 1.10 1.10 1.10 1.10 1.25 1.25 1.50 1.50 Assorted, 4 to 8-32, \$1.10.

"OUR EXTRA" CERMAN PATTERN BITS.

A high-grade German Pattern Bit, made from an extra quality of steel, and carefully tempered. All selected Bits, with hand-filed points

No. . . 2 3 4 5 6 7 8 9 10 11 12 Per dozen . \$1.00 1.10 1.10 1.10 1.10 1.10 1.25 1.25 1.50 1.50

STEEL AND IRON SQUARES.

ı	- January Company	3 4	्रा ज्यापान समितिस्य	A 81	9 10		13 13		16 17	
	- 4 0 m	1 2	3 4	5 6	7 18	9	10 112	1 2 1 3	14 15	
						L SQU	ARES.			
	16 00	No.			Widt Inche					
	- 6 <u>1</u>	100	Cast Steel-	-Improve	d 2	$\int_{8}^{\frac{3}{3}} (Bos)^{\frac{1}{3}}$	quare as ard Mea	, $\frac{1}{10}$, $\frac{1}{8}$ wind $\frac{1}{100}$ th sure.	th Brace I scale, and	Ieasure, Essex's
	8L 2	1		Drafting	, 2	$\begin{cases} \frac{1}{T} \\ \text{and} \\ \text{ure} \end{cases}$	$\frac{1}{100}$ sca	vith Brace le, and E	Measure, ssex's Boar	8 square d Meas-
	- 41	2		Finish,	2	$\begin{cases} \frac{1}{1} \end{cases}$	$\overline{6}$, $\overline{1}$ $\overline{2}$, $\overline{8}$	$\frac{1}{4}$, with	Brace Me	asure, 8
	9E	$2\frac{1}{2}$	Framing		2				x's Board I n Sides and	
	SI	3	Sup. Sup.	Extra .	2	∫ 1	$6, \frac{1}{12}, \frac{1}{4}$		ace Measu	_
10.00	- N	4	Sup. Extra	ı	3	${ m Ess}^1$	$\overset{1}{\text{ex}}, \overset{1}{\overset{1}{\text{g}}}, \overset{1}{\overset{1}{\overset{1}{\text{4}}}},$	with Brand Measur	ace Measu re.	re, and
	EL ST	5	Extra .		2	$\begin{cases} \frac{1}{1} \\ \text{Ess} \end{cases}$	ex's Boa	th with B and Measur	race Meas	ure, and
	SI	6	A, Brace		2	$\int \frac{1}{g}$		Brace Me	asure, and	Essex's
100		7	В,		2	18	$\frac{1}{4}$, and $\frac{1}{4}$	Essex's Bo	oard Measu	re.
100	01.	8	Extra .		1½	${f Mes}^1$	$\frac{1}{8}$, $\frac{1}{4}$, asure.	inch ai	ıd Essex's	Board
	- 6 4 -	9	Plain .		$1\frac{1}{2}$	$\frac{1}{8}$, <u>1</u> .			
=	9 7	10	Extra, 1 fo	oot	$1\frac{1}{2}$	ī	$\frac{1}{2}$, $\frac{1}{8}$, $\frac{1}{4}$.			
6112	5 5 5	11	Plain, 1		$1\frac{1}{2}$	<u>1</u>	$\frac{1}{4}$.			
		12	Cast-steel,		11		6, 12, 3.			
100	9 -	15	Bridge Bu	ilders .	3	Í	6, 12, 8,	₫, slot in c	entre, 1 inc	ch wide.
100	<u> </u>	Num	er	100	1	2	\mathfrak{L}^1_2	3	4 5	6
	- 8	Pol'sl per d		\$40.00	33,00	30.00	28.00	27.50 26	.50 25.50	24.50
4 17	13 8		el plated, \(\)	\$50.00	42.00	42.00	36.00	35.00 34	.00 33.00	32.00
	- 2	Numl	oer	7	8	9	10	11	12	15
110.0 111	- 64 I ;	Polisl per d		\$23,50	24.00	22.00	20.00	19.00	23.00	300 00
1144	N NO.		el plated, { doz.,	\$31.00	31.50	29.50	26.0	0 25.00	29.00	325.00
	Fig. 987. No. 3.	N	Nos. 100 to 5	furnished	with 18	inch to	ngue, ur	iless other	wise order	ed.
				CAN BL			-		4.57	4
	ımbe r r dozen		. , 8	100 B \$40.00 . for Bluin	1 B 33.00 1g \$3.00	27	B .50 en net.	10 B 20.00	12 B 23 00	14 B 23.00
No.			idth,	EAGL	E SQU	ARES.				Polished, Per Doz.
13 14		race	ches. $\frac{2}{2}$ $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{4}$,	with Bra Ess	ce Meas ex Board	nre and d Measu	Essex B	oard Mea	sure •	\$23.50 23.00
		Steel	Squares 4 do	Nicke	1 Plated	Extra.				

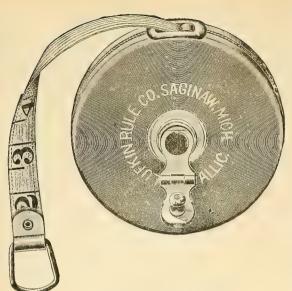


Fig. 988.

SAGINAL

Fig. 989.

POCKET STEEL TAPES.

GERMAN SILVER CASES, SPRING WIND, WITH STOP.

Mar	ked on	e side	U.	8. 8	stand	lard	Grad	nated	lin	$\frac{1}{1}$ ths.
										Per Doz.
No.	153.	3 ft.	1/4 i	neh	Tap	ę				\$14.00
6.6		4 "	Ĉ.	6.6	4 h					16.00
6.6	155.	5 "	6.	6.6	4					18.00
4.6	156.	6 '	4.4	4.6	6.4	e				
	157.	7	4.6	6.6	4.6					23.00
	158.									
4.6	1510.									
	1512.	12 "	1 6	4.	4.4					36.00

Tapes marked on back in feet instead of links when wanted, at same price.

METALLIC MEASURING TAPES.

Tape 56 inch wide made of best woven linen, with metallic warp. Hard leather cases, folding handles with brass trimmings.

12	ths.	101	ths.			Per Doz.	×
No.	500	No.	500D	25	ft.	\$20.40	Only.
+ 6	501	6.5	501 D	33	4.6	24.00	9
1.6	502	6.4	502D	40	66	26.40	Side
6.6	503	+ 6	503D	50	6.6	30.00	One
	504	6.4	504D	66	66	33.60	Õ
+ 4	505	s 6	505D	75	4.4	37.20	eđ
6.6	506	6.6	506D	100	6 4	46.80	Marked
							M
120	hs and	10t	hs and				
	ns and inks.		hs an d inks.			Per Doz.	
L		1	inks.	L 25	ft.	Per Doz. \$21.60	es.
L	inks.	1	inks.				Sides.
No.	inks. 500L	No.	inks. 500D	L 33		\$21.60	h Sides.
No.	inks. 500L 501L	No.	inks. 500D] 501D]	L 33 L 40	**	\$21.60 25.20	3oth Sides.
No.	inks. 500L 501L 502L	No.	inks. 500D] 501D] 502D]	L 33 L 40 L 50	66	\$21.60 25.20 27.60	d Both Sides.
No.	500L 501L 502L 503L	No.	500D] 501D] 502D] 503D]	L 33 L 40 L 50 L 66	4-	\$21.60 25.20 27.60 31.20	rked Both Sides.
No.	500L 501L 502L 503L 504L	No.	500D] 501D] 502D] 503D] 504D]	L 33 L 40 L 50 L 66 L 75	66	\$21.60 25.20 27.60 31.20 36.00	Marked Both Sides.

Tape % inch wide, made of best woven linen with metallic warp. Hard leather cases, with double folging flush hardles, opened by pressing pin on opposite side. Nickel-plated trimmings.

12ti	600 601 602 603 604 605 606		600D 601D 602D 602D 603D 604D 605D 606D	25 33 40 50 66 75 100	ft.	\$24.00 27.60 30.00 33.60 37.20 40.80 50.40	Marked One Side Only.
Li	600L 600L 601L 602L 603L 604L 605L 606L	L	hs and dinks 600DL 601DL 602DL 603DL 604DL 605DL 606DL	25 33 40 50 66 75 100	ft.	Per Doz. \$25.20 28.80 31.20 34.80 39.60 43.20 54.00	Marked Both Sides.

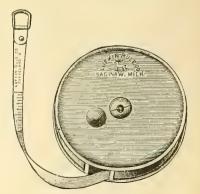
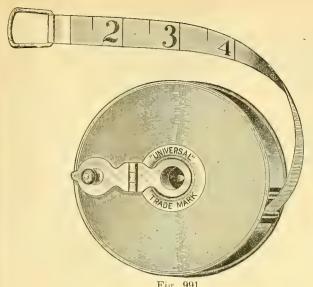


Fig. 990

MEASURING TAPES.



COMMON ASSES' SKIN CASE, WITH 1-2 INCH COTTON TAPE.

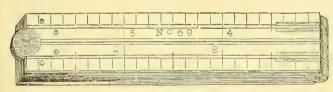
Brass Bound Cases, Brass Folding Handles and Trimmings.

Fig.	991.

Nos.	710	711	712	713	714	715	716
Length, feet	25	30	40	50	66	75	100
Per dozen	\$3.75	4.00	4 50	5.00	6.00	7.50	9.00
		One-ha	alf dozen in	a box.			

BOXWOOD RULES.

ONE FOOT, FOUR FOLD, NARROW,



No. 69. Round Joint, Middle Plates, 8ths and 16ths of inches, 5 inch wide, per dozen . \$3.00

Fig 992.



No. 64. Square Joints, Middle Plates, 8ths and 16ths of inches, § inch wide, per dozen . \$3.50

Fig. 993.

BOXWOOD RULES.

TWO FEET, FOUR FOLD, NARROW.

No. 68. Round Joint, Middle Plates, 8ths and 16ths of inches, 1 inch wide, per dozen No. 63. Square Joint, Middle Plates, 8ths, 10ths, 12ths and 16ths of inches, Drafting Scales, 1 inch wide, per dozen 7.00 No. 68, 1 dozen in a box. No. 63, $\frac{1}{2}$ dozen in a box.

STANLEY'S PLUMBS AND LEVELS.



No.	Fig. 994.	Per Dozen.
104.	Plumb and Level, Arch Top Plate, Two Side Views, Polished,	
	Assorted, 12 to 18 inches,	\$14.00
$1\frac{1}{3}$.	Mahogany Plumb and Level, Arch Top Plate, Two Side Views,	40.80
2	Polished. Assorted, 18 to 24 inches,	16.50
$1\frac{3}{4}$.	Same as No. $1\frac{1}{2}$, except is Brass Lipped Side Views, Polished and	2 11 2 2
**	Tipped, Assorted, 12 to 18 inches,	27.00

ADJUSTABLE PLUMBS AND LEVELS.



No.	Fig. 995.	Per Dozen.
1.	Patent Adjustable Mahogany Plumb and Level, Arch Top Plate, Two Side Views, Polished, Assorted, 24 to 30 inches,	\$27.00
2.	Patent Adjustable Plumb and Level, Arch Top Plate, Two Brass Lipped Side Views, Polished, Assorted, 24 to 30 inches,	27.00
3.	Patent Adjustable Plumb and Level, Arch Top Plate, Two Side Views, Polished and Tipped, Assorted, 18 to 24 in., 24 to 30 in.,	30.00
9.	Patent Adjustable Plumb and Level, Arch Top Plate, Two Ornamental Brass Lipped Side Views, Polished, Assorted, 24 to 30 inches,	48.00
10.	Patent Adjustable Plumb and Level, Triple Stock, Two Ornamental Brass Lipped Side Views, Arch Top Plate, Polished and Tipped,	
	24 to 30 inches,	60.00
11.	Patent Adjustable Rosewood Plumb and Level, Arch Top Plate,	00.00
	Two Ornamental Brass Lipped Side Views, Polished and Tipped,	90.00

PROVED LEVEL GLASSES.



Fig. 996.

Made of extra thick tubing. By a patented process each Level Glass is marked at its highest or crowning point by two indelible lines, and each Plumb Glass with a single line. The owner can thus easily set the Glass accurately in its proper position. Length, inches, $1 \text{ to } 1\frac{3}{4}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 $4\frac{1}{2}$ Per gross, . . \$9.50 10.00 10.50 11.50 13.00 14.50 16.00

CROUND LEVEL CLASSES.

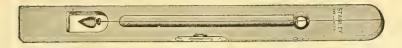
Per gross, \$12.00.

Assorted, $1\frac{3}{4}$, 3 and $3\frac{1}{2}$ inch,

The inside surfaces of these Glasses are ground perfectly smooth, and thus the bubble is made extremely sensitive.

Length, inches,	1 to 13	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Per dozen, .	\$5.00	6.00	$6.\bar{50}$	7.00	7.50	8.00	9.00

MASONS' PLUMBS AND LEVELS.



M 70			Fig. 99	97.			_	
No.						_		r Doz.
7. Masons'	Plumb a	and Level,	Arch Top	Plate,	two Plu	mbs, two	Side	
View	s, Polish	ed and Tip	ped, $36 \; \mathrm{inc}$	hes .				36.00
35. Patent A	ldjustabl	le Masons' F	Plumb and	Level				48.00
	A	dapted also	for Plumb	Bob Lin	e 42 inc	$_{ m hes.}$		
			DI II	мв в	O P C			
0						*		
			IROI	I JAPAI	NNED.			
	Nos.			1	$\stackrel{\circ}{\sim}$	$2\frac{1}{2}$	3	4
	Weight	, each, lbs.		5	7	1 1	$2\frac{1}{4}$	$2\frac{3}{4}$
		zen .			-	_		_
							1100	0.70
V = V				STEEL F				
	Nos					1		2
	Weight	, each, lbs.				<u>3</u>		$1\frac{1}{4}$
A	Per do:	zen				\$6.85		8,95
Fig. 998.								
IRON AND LE	AD.							
	Summing		BRA	SS, STE	EEL PO	INTED.		
		Nos		1	2	$2\frac{1}{2}$	3	4
	3	Weight, ea					2	31
	1							04
		Per dozen		\$9.30	13 00	17.55	23.10	30.55
			CAST	BRASS,	STEEL	POINTED),	
athantsa.		No. 20.	Weight es	ch 3 lbs	ner d	ozen		\$7.80
And the second s			- /	-	_	02011 .	•	
F: ~ 000		" 21.	66	<u>5</u> 6	6 66		•	10.90
Fig. 999.								

WROUGHT STEEL SHELF BRACKETS.

Half dozen in a box.

5x6

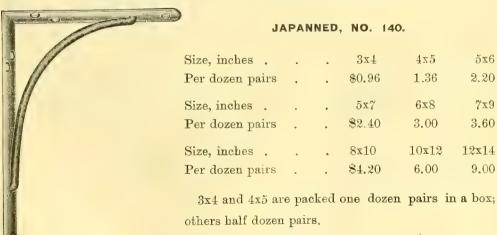
2.20

7x9

3.60

12x14

9.00



281

Fig. 1000.

BRASS.

COAT AND HAT HOOKS.

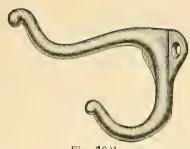


Fig. 10)1.

	Projection.	Per
No.	Inches.	Gross.
86393	34. Polished Kahala Bronze	
$7639\frac{1}{2}$	$3\frac{1}{4}$. " Antique Copp	per
2	finish	. 9.75
$639\frac{1}{5}$	31. Unpolished, Bronze Plat	ed 8.15
639	$3\frac{1}{4}$. Polished, ""	14.65

Cast Metal.

One-sixth gross in a box. Packed with screws.

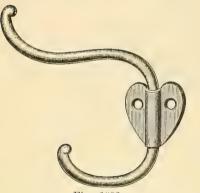


Fig. 1002.

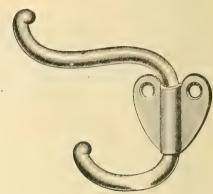


Fig. 1003.

WROUGHT METAL.

I	Projection	n.	Per	. P	rojectio	on.	Per
No.	Inches	5.	Gross.	No.	Inches	š.	Gross.
7137	3 1 .	Bronze Plated	\$10.90	7138	$3\frac{1}{4}$.	Bronze Plate	\$13.80
137	$3\frac{1}{4}$.	Real Bronze	28.60	138	$3\frac{1}{4}$.	Real Bronze	59.00

BACCACE-CAR HOOK.

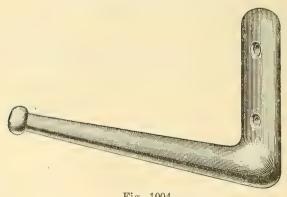


Fig. 1004.

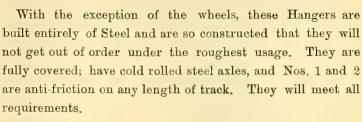
CAST METAL, JAPANNED.

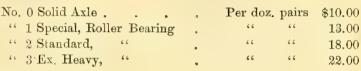
Size, 6 inches. One-sixth gross in a box. Per gross, \$11.70

DOOR TRIMMINGS.

STEEL DOOR HANGERS.

ANTI-FRICTION.





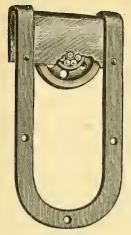


Fig. 1005.

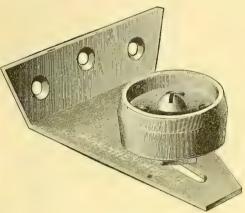


Fig. 1006.

ADJUSTABLE STAY ROLLERS.

Adjustable to doors of any thickness.

Size No. 1, per single doz. \$2.50

STEEL TRACK FOR DOOR HANCERS.

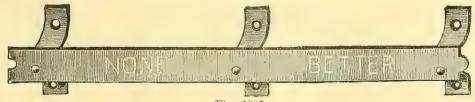
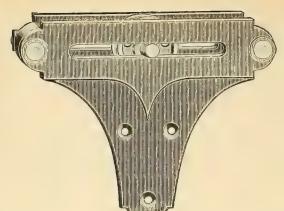


Fig. 1007.

		No.	of Pieces	OF TRACK IN	EACH BUND	LE.
			Lengths			Lengths
Size.	Price per foot.	4 feet.	6 feet.	8 feet.	10 feet.	12 feet.
$1 \times \frac{3}{16}$	6 cents	12	8	8	6	6
$1\frac{1}{4} \times \frac{3}{16}$	7 66	12	8	. 8	6	6
$1\frac{1}{2} \times \frac{3}{16}$	9 "	12	8	8	6	6

Our Track is Straight, well made and securely bundled.



HANGING SHEAVES

FOR

BACCACE AND FREIGHT CAR DOORS.

IRON CASE, TURNED WHEEL.

Fig. 1008.

Size of Wheel. Inches. No. $2\frac{3}{4}x\frac{1}{2}$ 34

Size of Frame. Inches. $8\frac{1}{2}$ x $10\frac{3}{4}$

Length of Run. Inches. 27

Per Pair. \$7.15

SASH PULL SOCKETS.

PULL DOWN HOOKS.

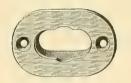
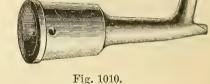


Fig. 1009. Cast Metal,

BRONZE PLATED.

07020. $1\frac{3}{8}x2\frac{1}{4}$



Cast Metal.

BRONZE PLATED.

Per Doz. No. Size, Inches. Per Doz. No. \$1.00 . \$2.45 7027. 8027. Kahala Bronze . 1.30

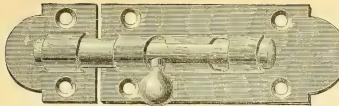
BARREL BOLTS.



Fiz. 1011.

Cast Metal.

	Kahala Bronze (dark	broan]	Wrc	ught	Iron B	olt, Real	Bronze	Knob.	
No.	Size, inches					$2\frac{1}{2}$	3	4	5	6
8001.	Per dozen .					\$1.45	1.65	1.95	2.35	2.60
	Bronze Plated,	Black	k Bacl	Gro	und,	Light I	Polished 1	Bronze	Relief.	
No.	Size, inches		•			$2\frac{1}{2}$	3	4	5	6
7001.	Per dozen .)				\$				



WROUGHT STEEL BARREL BOLTS.

One dozen in a box.

LICHT BRASS KNOBS, JAPANNED PLATES, POLISHED BOLTS.

WROUGHT STEEL SQUARE BOLTS.
JAPANNED PLATES, POLISHED BOLTS, STEEL SPRINGS.

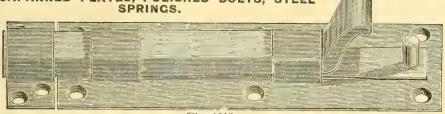


Fig. 1013.

Size, inches 5 6 4 9 10 12 Per dozen . \$2.50 2.65 2.85 3.75 4.00 4.35 6.50 7.00 Size of bolt, inch $\frac{1}{2}$

4 to 6 inch, one dozen in a box; 7 to 12, half dozen.

SQUARE NECK BOLTS.

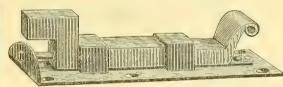


Fig. 1014.
Japanned Plates,
Polished Bolts.

Size, inches. Per Doz. 4 \$2.90 6 4.30

6 4.30 8 5.50



Fig. 1015.

Japanned Plates, Polished Bolts, Brass Knobs.

Size, Inches. Per Doz. \$3.65 5 3.85 6 4.10

WROUGHT SPRING BOLTS, JAPANNED PLATES, POLISHED BOLTS.

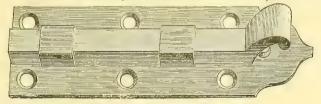
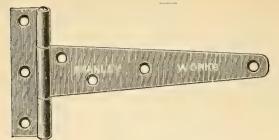


Fig. 1016.

		_											
No.				0	1	2	3	4	5	6	$6\frac{1}{2}$		
Inch .				2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6		
Per doze	en .		\$	1 10	$1.\bar{2}0$	1.35	1.60	1.80	2.10	2.25	2.70		
	All Brass, Polished.												
No					$18\frac{1}{2}$	19	20	21	22	23	24		
Inch .					2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5		
Per doze	en .				\$2 25	2.70	3.25	$^{1}4.00$	4.30	5.15	5.40		

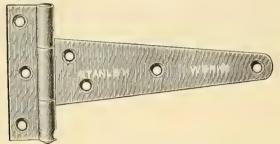


LIGHT

T HINGES.

Fig. 1017.

eize,				Inches,	3	4	5	6	8	10	12	14
Plain Steel,			Per de	oz. pairs,	\$1.15	1.25	1.55	1.85	2.35	3.45	4.70	6.10
Galvanized Steel	l,		. 6	66	2.05	2.50	3.00	3.60	5.25	6.70	9.75	15.00
Width at joint,				Inches,	$1\frac{1}{16}$	1_{16}^{1}	1_{18}^{3}	$1\frac{1}{4}$	$1_{\frac{9}{16}}$	$1\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{1}{4}$
Length of "				6.6	$2\frac{1}{2}$	$2\frac{3}{4}$	3	37	4	41	$4\frac{3}{4}$	$5\frac{1}{2}$
Size of screw,				No.	7	7	8	8	9	10	11	12
Weight, .		Per	doz pa	airs, lbs.,	2	3	$5\frac{1}{2}$	6	$8\frac{1}{2}$	$12\frac{1}{2}$	$20\frac{1}{2}$	



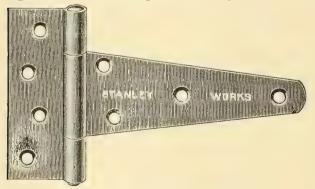
HEAVY

T

HINCES.

Fig. 1018.

Size,			. Inches,	4	5	6	8	10	12	14	16	18
Piain Steel, .			,		2.25	2.70	3.40	5.00				12.50
Galvanized Steel,		6.6	41	2.50	3.00	4.35	6.00	8.25	13.75	19.50	21.00	23.00
Width at joint, .			. Inches,	1_{16}^{5}	13	$1\frac{9}{16}$	$1\frac{3}{4}$	2	$2\frac{7}{16}$	$3\frac{1}{8}$	$3\frac{1}{8}$	31
Length of " .			. "	3	$3\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$5\frac{1}{2}$	6	6	6
Size of screw, .			. No.	8	8	9	10	11	12	13	14	14
Weight,	Per	doz.	pairs, Ibs.,	31	6	9	$11\frac{1}{2}$	$18\frac{1}{2}$	31	46		



EXTRA HEAVY

Т

HINGES.

, Fig. 1019.

Size,				. It	iches,	4	5			6	8	10	12	14	16
Plain Steel, .					pairs,	\$2.80	3.85.	Per	lь.,	\$0.24	.23	.21	.21	.21	.21
Galvanized Steel	١,		4.4		6.6	4.50	6.00.	+4		.38	.38	.35	.32	.30	.28
Width at joint,				. In	ches,	$1\frac{5}{8}$	$1\frac{1}{16}$			25	25	31	33	33	33
Length of " .										$4\frac{1}{5}$	$5\frac{1}{5}$	7	73	73	$7\frac{3}{4}$
Size of screw, .										11	-		- 4	17	,
Weight,		Per	doz.	pairs	lbs.,	7	13			191	32	54	81	87	94
		Abo	ve G	alvar	ized :	Hinges	have	Galvaniz	ed S	itecl Pi	ns.				

STRAP HINCES.

LICHT STRAP HINCES.

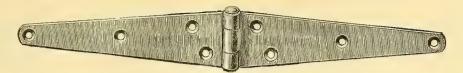


Fig. 1020.

Size, inches Plain steel, per doz. pairs Galvanized, with solid steel pins	. \$1.35	4 1.80	5 2.20	6 2.85	8 4.00	10 5.50	12 8.00	14 10.50
per doz. pairs	. 1.85	2.50	3.40	4.25	7.10	8.70	16.00	18.50
Width at joint, inches .	$1\frac{1}{8}$	$1\frac{1}{8}$	1 5	1,8	17	2^{1}_{16}	23	$2\frac{13}{16}$
Size screw, No	. 6	7	3	9	10	10	12	13
Weight, per doz. pairs, lbs.	. 3	$5\frac{1}{4}$	7	9	$14\frac{1}{2}$	21	33	

HEAVY STRAP HINCES.

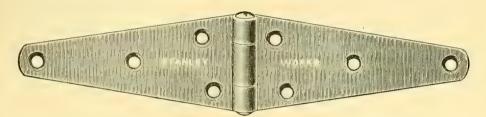


Fig. 1021.

Size, inches	4	5	6	8	10	12	<i>r</i> 4	16
Plain steel, per doz. pairs	\$2 45	3.50	per lb23	.21	.20	.20	.20	.20
Galvanized, with solid steel								
pins, per dozen pairs	3.40	4.60	per lb38	.38	.35	.32	.32	.30
Width at joint, inches .	1 7 6	113	21	3	3,7	4	41	43
Size of screw, No	9	10	11	12	14	16	16	16
Weight, per doz. pairs, lbs.	6	101	19	34	50	77	88	

HOOK HINGES, WOOD SCREW HOOK.

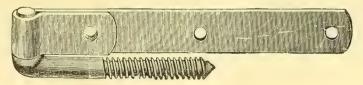
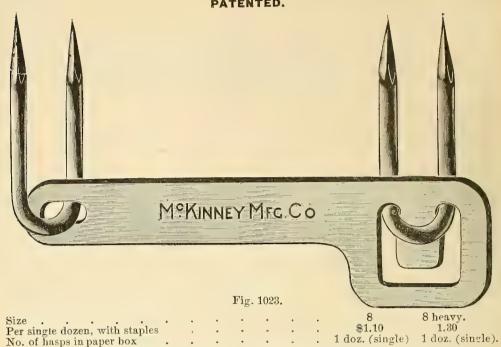


Fig. 1022.

Size, inches				6, 8, 10, 12	14, 16, 18, 20	22, 24, 26, 28, 30, 36
						<u></u>
Price, per lb.	*	۰	•	\$0.06	$.05\frac{3}{4}$	$.05rac{1}{4}$

"PERFECT" HASPS AND STAPLES.



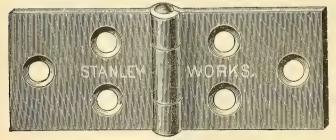
It cannot be opened accidentally, as the weight of the head and shape of slot hold it securely in place. It can be locked with padlock same as any other hasp. It can be used on either right or left hand doors.

HINCE HASPS



Fig. 1024.

Size, inches		3	$4\frac{1}{2}$	6	8	10	12
Plain Steel	Per single doz.	\$0.85	1.05	1.35	1.80	2.60	3.55
Galvanized	Per doz. pairs	\$3.35	4.25	6.00	9.50	13.25	
Width at joint, inches		$1\frac{1}{8}$	$1\frac{1}{8}$	$1rac{1}{2}$	$1\frac{7}{8}$	$2\frac{3}{16}$	$2\frac{3}{4}$
Size of Screw No		6	7	9	10	10	12



WROUGHT STEEL BACK FLAPS.

COMPANY, NEW YORK.

BRIGHT.

PATENT RIVETED.

	Fig. 102
	3
0	4.04.20

Size, inches	3 A	4	1	した	14	Tä	1.5	14	~
Per dozen pairs .	\$0.70	.75	.80	.9ö	1.00	1.10	1.20	1.45	1.70
Width, open, inches	23	$2\frac{13}{16}$	$2\frac{7}{8}$	3	378	3 3	3^{-7}_{-6}	$_4$	$4\frac{3}{8}$
Size of Screw No.	6	6	6	6	6	7	8	8	9
Square; per doz. pairs			\$0.75	.80	.90	1.00	1.05	1.30	1.40
Width, open, inches			2	2^{1}_{4}	2 5	2,9	$2\frac{3}{4}$	$3\frac{3}{16}$	$3\frac{11}{16}$
					2 2				

All Back Flaps have 6 screw holes.

WROUGHT STEEL NARROW BUTTS.

LIST OF HEAVY NARROW BUTTS.

	Length, Inches.	Bright Steel. Per Doz. Pairs.	with Brass Pins, Per Doz. Pairs.	Width Open, Inches.	Size of Screw No.	Screw Holes in Each Butt.
	1	\$0.40		$1\frac{1}{4}$	5	4
	$1\frac{1}{4}$.50		1_{16}^{5}	6	4
	$1\frac{1}{2}$.65	\$1.40	$1\frac{1}{2}$	7	4
	$1\frac{3}{4}$.80	_	1_{16}^{9}	7	4
	2	.90	2.00	$-\frac{3}{4}$	8	4
	$2\frac{1}{4}$	1.05		$1\frac{13}{16}$	8	6
	21/2	1.10	2.60	$1\frac{7}{8}$	8	6
	$\stackrel{\circ}{\sim} \frac{3}{4}$	1.30		2-16	9	6
	3	1.45	3.15	$2\frac{1}{8}$	9	. 6
	34	1.70		$\frac{2}{2}\frac{1}{4}$	9	6
	$3\frac{1}{2}$	2.00	4 80	2 3 6	10	6
	$3\frac{3}{4}$	2.70		25/8	10	6
	4	2.85	6.50	$2\frac{7}{8}$	10	8
Fig. 1026.	$4\frac{1}{2}$	3.70	8.00	3	11	8
	5	4 60	10.00	$3\frac{3}{8}$	12	8
	$5\frac{1}{2}$	6.00		$3\frac{1}{1}\frac{3}{6}$	13	8
	6	7.10		418	13	8

LIST OF LICHT NARROW BUTTS.

Length Inches.		Planished and Bronzed, Per Dozen Pairs, with Screws.	Galvanized with Brass Pins, Per Dozen Pairs.	Width, Open, Inches.	Size of Screw No.	Screw Holes in Each Butt.
3	\$0.40	\$0.50		11 16	2	4
1	.40	.65		1	3	4
$1\frac{1}{4}$.50	.70		1_{16}^{-1}	3	4
$1\frac{1}{2}$.65	.75	\$1.30	1_{16}^{7}	5	4
$1\frac{3}{4}$.80	.83		$1\frac{7}{16}$	5	4
2	:90	.92	1.85	$1_{\overline{1}\overline{6}}^{9}$	6	4
21/4	1.05	1.03	2.15	$1\frac{11}{16}$	6	6
$2\frac{1}{2}$	1.10	1.13	2 40	1_{16}^{11}	6	6
$2\frac{3}{4}$	1.30	1.20		$1\frac{7}{8}$	7	6
3	1.45	1.25	3.00	2	7	6
$3\frac{1}{4}$	1.70	1.60		$2\frac{1}{4}$	9	6
$3\frac{1}{2}$	2.00	1 90	4.40	$2\frac{1}{2}$	9	6
$3\frac{3}{4}$	2.70	2.25		2^{-9}_{16}	10	6
4	2.85	2.50	6.00	$2\frac{7}{8}$	10	8
$4\frac{1}{2}$	3.70	3.35		3	11	8
5	4.60	4.20		$3\frac{5}{16}$	12	8

CAST LOOSE PIN BUTTS.

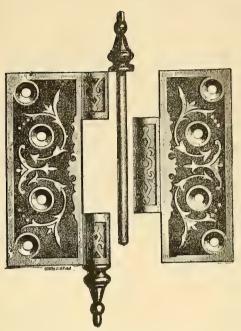


Fig. 1028.

Fig. 1027.

STEEPLE TIPS.

BALL TIPS.

T			DALL 111 01	
Length and				D
Width		Japanned		Screw Holes in
Open,	Steeple Tips,	Steeple Tips,	Size of Screw.	Each
Inches.	Per Doz. Pairs.	Per Doz. Pairs.	No.	Butt.
2 x2	\$1.00	\$2.00	8	4
2 x21	1.10	2.15	8	4
$\frac{21}{2}$ x2	1.20	2.30	8	6
	1.35	2.50	8	
$2\frac{1}{2}x2\frac{1}{2}$				6
$2\frac{1}{2}x3$	1.50	2.65	8	6
$3 \times 2\frac{1}{2}$	1.60	2.80	9	6
3×3	1.75	3.00	9	6
$3 \times 3\frac{1}{2}$. 1.95	3.25	9	6
$3\frac{1}{2}x3$	2.15	3.45	9	6
$3\frac{1}{2}$ x $3\frac{1}{2}$	2.35	3.70	9	. 6
$3\frac{1}{2}x4$	2.50	4.00	12	6
$4^{2}x3\frac{1}{2}$	2.70	4.25	12	>
4 x4	2.90	4.50	12	8
$4 \times 4\frac{1}{2}$	3 20	5.00	12	8
4 x5	4.00	5.40	12	8
$4\frac{1}{2}x4$	3,50	5.30	12	8
$4\frac{1}{2}x4\frac{1}{2}$	4.00	5,50	12	8
$4\frac{1}{2}x5$	4.20	6.20	12	8
5x5	5.50	7.00	14	10
$5 \times 5\frac{1}{2}$	5.70	7.50	14	10
5 x6	6 50	8.00	14	10
$5\frac{1}{2}x5\frac{1}{2}$	6 50	8.50	14	10
6 x 6	7.60	10.50	14	10

Fig. 1028. Ball Tips are same list as Steeple Tips, $2x^2$ to $3x^3$, packed one dozen pairs in a box; $3x^3\frac{1}{2}$ to $5x^5$ are packed $\frac{1}{2}$ dozen in a box; $5x^5\frac{1}{2}$ and up, $\frac{1}{4}$ dozen in a box.

. .

WROUGHT STEEL LOOSE PIN BUTTS.

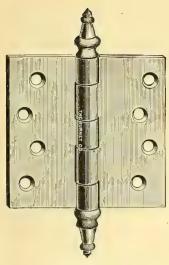


Fig. 1029.

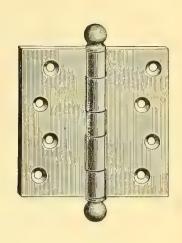


Fig. 1030.

WITH STEEPLE TIPS.

WITH BALL TIPS.

Length and	Bright	Japanned	Size of	Screw Holes
Width Open,	Steeple Tips,	Steeple Tips,	Screw.	in each
Inches.	Per Doz. Pairs.	Per Doz. Pairs.	No.	Butt.
2 x2	\$3.50	\$2.50	7	4
$2 x_{\frac{1}{2}}$	4.00	2.80	7	4
$2\frac{1}{2}x2$	4.00	2.90	8	6
$2\frac{1}{2}x2\frac{1}{2}$	4.30	3.00	8	6
$3 \times 2\frac{1}{2}$	4.80	. 3.30	9	6
3 x3	5.00	3.50	9	6
$3 \times 3\frac{1}{2}$	5,60	3.65	9	6
$3\frac{1}{2}x3$	5.70	3.80	10	6
$3\frac{1}{2}x3\frac{1}{2}$	6.00	4.00	10	6
$3\frac{1}{2}x4$	6.60	4.40	10	6
$4 \times 3\frac{1}{2}$	6.80	4.70	10	8
4 x4	7.40	5.00	10	8
$4 \times 4\frac{1}{2}$	8.00	5.40	10	8
$4\frac{1}{2}x4$	8.30	5.70	11	8
4 x5	8.50	5.80	10	8
$4\frac{1}{2} \times 4\frac{1}{2}$	8.90	6.00	11	8
$4\frac{1}{2}x5$	9.80	6.60	11	8
5 x5	11,40	7.50	12	8
5 x6	12.50	8.50	12	8
5 x7	15.50	10 00	12	8
$5\frac{1}{2}x5\frac{1}{2}$	14.50	9.00	13	8
6 x6	16.70	11.00	13	8

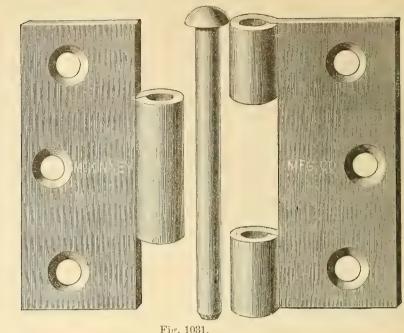
Fig. 1030 With Ball Tips same list as Steeple Tips. 2x2 to 5x5 packed $\frac{1}{2}$ dozen pairs in a box. 5x6 and up $\frac{1}{4}$ doz. in a box.

POLISHED STEEL REVERSIBLE LOOSE PIN BUTTS.

Cut

Shows

3x3 Butt.



			rig. n	701.			
Size open .	2x2	$2x2\frac{1}{2}$	2x3	$2\frac{1}{2}x2$	2½x2½	$2\frac{1}{2}x3$	$3x2\frac{1}{2}$
Per doz. pairs	\$1.40	1.50°	1.70	1.60	1.80	2.20	2 40
Size of Screw	No. 7	7	7	8	8	8	9
No. of Screws	4	4	4	6	6	6	6
Size open .	3x3	$3x3\frac{1}{2}$	$3\frac{1}{2}x3$	$3\frac{1}{2}x3\frac{1}{2}$	3 1 x4	$4x3\frac{1}{2}$	4x4
Per doz. pairs	\$2.60	3.00^{-}	3,60	$\bar{3} \ 80$	4.30	4.60	4.70
Size of Screw	9	9	10	10	10	10	10
No. of Screws	6	6	6	6	6	8	8
Size open.	$4x4\frac{1}{2}$	$4\frac{1}{2}x4$	$4\frac{1}{2}x4\frac{1}{2}$	$4\frac{1}{2}x5$	5x5	$5\frac{1}{2}x5\frac{1}{2}$	9z9
Per doz. pairs	\$4.80	5.30	5.90	6.50	7.70	9.60	11.40
Size of Screw	10	11	11	11	12	13	13
No of Screws	8	8	Q	Q	Q	9	8

PADLOCK.

DESCRIPTION.

All Bronze Metal, Highly Polished; Spring Self-locking, Spring Shackle, two Bronze Metal Drilled Barrel Keys.



Fig. 1032.

		Size Across		
		Case.	Per	Doz.
Fig.	1032.	1_8^5 inches		\$3.50
Fig.	1033.	With 9-inch Japanned	German	
		Coil Chain		5.50
Fig.	1034.	$1\frac{3}{4}$ inches		4.25
Fig.	1035	With 9-inch Japanned	German	
		Coil Chain		6.25
Fig.	1036.	2 inches		5.00
Fig.	1037.	With 9-inch Japanned	German	
		Coil Chain		7.00



8-LEVER PADLOCKS.

All Highest Grade.

DESCRIPTION.

Highest Grade; Very Heavy; Light, Fla'; Cut Push Levers; Thousands of Key Changes; Phosphor-bronze Springs; Matrixed Bolt; Exterior Machine Finished, with Depressed Parts Finished in Brown Enamel; entire Lock and Interior Works of Gun Metal Bronze; Spring Shackle, Spring Self-locking.

Two Rolled Steel Keys, Milled and Plated.

L IMPOG.	Size Across	
	Case.	Per Doz.
Fig. 1038,	$2\frac{1}{4}$ inches	\$9.50
Fig. 1039, w	ith 9-inch Japann	ed
German	Coil Chain .	. 11.50

6-LEVER PADLOCKS.

Same Style as Above Illustration.

DESCRIPTION.

All Bronze Metal; Spring Sliding Shackle; all Parts Very Heavy; Push-key; Spring Self-locking; Phosphor-bronze Springs; Three Cast Bronze Arm Levers; Two points of Key Contact on each Lever.

Two Rolled Steel Nickel-plated Keys.

Fig. 1040.	Size 2 inches across case				•	Per	doz.,	\$8.00
" 1041.	With 8-inch German Coil	Chain,	J.pai	med,		4.	6.6	10 00

PADLOCK.

All Parts Bronze Metal, Highly Polished; Spring Self-locking; Spring Shackle; Spring Key-hole Drop.

Bronze Metal Drilled Barrel Key, Two-keyed.

		Size Across Case.	Per Doz.
Fig.	1042	15 inches	\$5.80
"	1043	with Chain	7.75
66	1044	$1\frac{7}{8}$ inches	6.75
6.6	1045	with Chain	8.50
66	1046	$2\frac{1}{8}$ inches	7.50
	1047	with Chain	9.50

ILLUSTRATION EXACT SIZE, Fig. 1042.

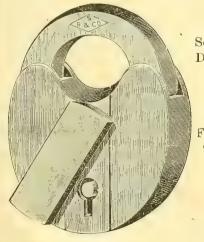
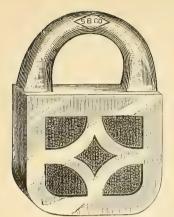


Fig 1042







PADLOCKS.

PATENTED.

FIG. 1048.

DESCRIPTION.

All parts Aluminum Bronze, Highly Polished; Spring Shackle; Spring Self-Locking.

Two Flat Steel Keys to Lock.

	S ze Across Case.	Per Doz.
Fig. 1048	$1\frac{3}{8}$ inches	\$2.10
" 1049	11/2 "	235
" 1050	15 "	2.50

FIG. 1051.

All parts Bronze Metal, Highly Polished, High Grade, Spring Self-Locking, Spring Shackle, Shackle Hole Plunger.

Two Rolled Steel Keys, Polished.

ILLUSTRATION EXACT SIZE.



Fig. 1051

 $\begin{array}{c} \text{Size Across} \\ \text{Case.} & \text{Per Doz.} \\ \textbf{1}_8^5 \text{ inches} & \$5.40 \end{array}$

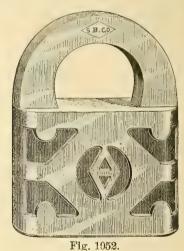


FIG. 1052.

Fig. 1051.

Highest Grade; all parts Gun Metal Bronze, Highly Polished; Phosphor-Bronze Springs; Spring Self-Locking, Spring Shackle; Secure Tumblers; Extra Large Number of Stock Changes; Spring Plunger; Revolvable Key Cylinder.

Two Rolled Steel Nickel-Plated Keys.

Fig. 1052.	$1\frac{3}{4}$ inche	s acro	ss case							Per doz.,	\$8.00
Fig. 1053.	With 8-i	nch Ja	apanned	l We	lded	Link	chain			66 66	10.00
		II	LUSTATI	on E	XACT	Size	$\mathbf{F}_{\mathrm{IG.}}$	1052.			
Fig. 1054.	2 inches	across	s case							Per doz.,	\$
· 1055.	$2\frac{1}{4}$ "	66	66						,	6' 66	
1056.	$2\frac{1}{2}$ "	66	66							66 66	
	Furnish	ed wit	h 8 incl	ı We	lded	Japar	ned (Chain,	extr	a price.	



Fig. 1057.

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Fig. 1063.

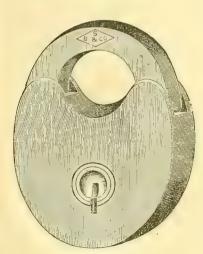


Fig. 1066.

PADLOCKS.

Fig 1057.

DESCRIPTION.

Iron and Steel. High Grade, Key-Locking Black Enameled Case and Polished Shackle; Rolled Steel Tumblers, cut; two Rolled Steel Polished Keys.

	Size Across	
	Case.	Per Doz.
Fig. 1057.	$1\frac{5}{8}$ inches.	\$3.10
Fig. 1058.	With 9-inch Coil Chain.	3.90
Fig. 1059.	$1\frac{7}{8}$ inches.	3,60
Fig. 1060.	With 9-inch Coil Chain.	4.60
Fig. 1061.	$2\frac{1}{4}$ inches.	4.00
Fig. 1062.	With 9 inch Coil, Chain,	5,00

Fig. 1063.

Illustration exact size Fig. 1057.

DESCRIPTION.

All Steel; Nickeled Shackle, Rust-Proof Case; Brass Interior Works; Spring Self-Locking; Spring Shackle; two Cast-Steel Drilled Keys.

	Size Across	
	Case.	Per Doz.
Fig. 1063.	$1\frac{5}{8}$ inches.	\$2.10
Fig. 1064.	$1\frac{3}{4}$ inches.	2.35
Fig. 1065.	2 inches.	2.90

Illustration exact size Fig. 1063.

Fig. 1066.

DESCRIPTION.

All Bronze Metal, Highly Polished; Spring Self-Locking; Spring Shackle; Milled Key Bushing; two Rolled Steel Keys.

	Size Across	
	Case.	Per Doz.
Fig. 1066.	$1\frac{5}{8}$ inches.	\$6.60
Fig. 1067.	With S-inch Steel Chain.	8,15
Fig. 1068.	$1\frac{7}{8}$ inches.	7.60
Fig. 1069,	With S-inch Steel Chain.	9.15
Fig. 1070.	2 inches.	8.70
Fig. 1071.	With 8-inch Steel Chain.	11.00

Illustration exact size 1066.

SWITCH LOCKS.

SPECIAL R. R. SWITCH OR CAR-DOOR LOCK, MADE TO FIT ANY KEY FURNISHED, AND WITH INITIALS OF ANY COMPANY EITHER CAST OR STAMPED ON THE LOCK,

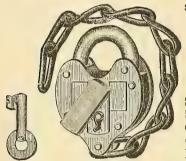
Fig. 1072. Size across case, $2\frac{1}{2}$ inches.

DESCRIPTION.

Extra heavy; all Gun Metal Bronze; Spring Shackle, Spring Self-locking; extra heavy Cast Bronze Tumblers, Bolt and Shackle-throw; heavy Spring-drop Keyhole Cover; German Coil Chain. Price per dozen for Locks without Keys . \$10.50



Fig. 1073 same as Fig. 1072, but without Chain, per dozen . . . \$8.80 Self-cleaning Barrel, all Bronze Metal, machine finished keys, per dozen . \$2.10 Ordinary Barrel, machine finished, all Bronze Metal """ 1.70



SPECIAL R. R. SWITCH OR CAR-DOOR LOCK, MADE TO FIT ANY KEY FURNISHED, AND WITH INITIALS OF ANY COMPANY EITHER CAST OR STAMPED ON THE LOCK.

Fig. 1074. Size across case, $2\frac{1}{2}$ inches.

DESCRIPTION.

All parts best Gun Metal Bronze; Tumblers and Shackle-throw very heavy and stout; Phosphorbronze indestructible Springs; Spring-drop Keyhole Cover; Spring Shackle, Spring Self-locking; heavy German Coil Chain, Japanned.

Price per dozen for Locks without Keys . \$12.85

Fig. 1074.

Self-cleaning Barrel, all Bronze Metal, machine finished keys, per dozen . \$2.10 Ordinary Barrel, machine finished, all Bronze Metal """ 1.70

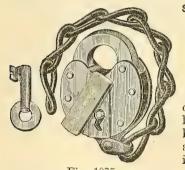


Fig. 1075.

SPECIAL R. R. SWITCH OR CAR-DOOR LOCKS, MADE TO FIT ANY KEY FURNISHED AND WITH INITIALS OF ANY COMPANY EITHER CAST OR STAMPED ON THE LOCK.

Fig. 1075. Size across case, 23 inches.

DESCRIPTION.

Highest grade; extra heavy and strong; all parts of Aluminum-nickel-bronze Alloy, patented; 40,000 lbs, tensile strength; Phosphor-bronze Springs; heavy Tumblers and Bolts; Shackle Hole Plunger, automatically closing Shackle Opening when Shackle is disengaged from interior mechanism, thereby excluding cinders and other foreign matter from the

interior of Lock; Drain Hole in bottom of Lock to permit water to run therefrom; heavy Spring-drop Keyhole Cover; Spring Shackle, Spring Self-locking; 9-inch Welded Link Japanned Iron Chain.

Price per dozen for Locks without Keys	\$12.85
Fig. 1076. $2\frac{3}{8}$ inches, same as Fig. 1075, but all parts Gun Metal Bronze	12.35
Fig. 1077. $2\frac{3}{8}$ inches, same as Fig. 1075, but without Chain	11.60
Fig. 1078. $2\frac{3}{8}$ inches, same as Fig. 1076, but without Chain	11.10
Self-cleaning Barrel, all Bronze Metal, machine finished keys, per dozen .	\$2.10
Ordinary Barrel, machine finished, all Bronze Metal	1.70

SWITCH LOCKS.

SWITCH AND CAR-DOOR LOCKS, IF DESIRED, MADE TO FIT ANY KEY FURNISHED.



All Gun Metal Bronze; Heavy Bronze Metal Sliding Bolt; Pivoted Tumblers; Spring-Drop Keyhole Cover; Phosphor-Bronze Springs; Spring Self-Locking, Spring Shackle; Rough Body finish; 9 inch Welded Link German Coil Chain, Japanned, attached to each Lock.

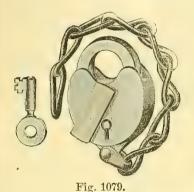
Per		without keys		\$8.75
	6.6	with one key to each lock		10.00
	66	with two keys to each lock		11.25

Fig. 1077.

Fig. 1078 same as above, but without chain

	0	,			
Per dozen,	without keys				\$8.15
66	with one key to each lock				9.40
66	with two keys to each lock				10,60
	Kind				

Friction Finished, Side-Bit, Bronze Metal Drilled Keys.



SWITCH AND CAR-DOOR LOCKS, IF DESIRED, MADE TO FIT ANY KEY FURNISHED.

All Gun Metal Bronze; Extra Secure and Durable; Heavy Bolt; Pivoted Tumblers; Phosphor Bronze Springs; Spring Keyhole Drop Cover; Spring Self-Locking, Spring Shackle; Polished as illustration; 9 inch Welded Link German Coil Chain, Japanned, attached to each Lock,

$_{\mathrm{Per}}$	aozen,	without keys	\$10.00
	66	with one key to each lock	11 25
	66	with two keys to each lock	12.50

Fig. 1080 same description as above, but without chain.

Per dozen, without keys .					\$8.75
" with one key to each loc	k .				10.00
with two keys to each lo	ck .				11.25

Kind of Keys.

Friction-Finished Side-Bit, Bronze Metal Drilled Keys.

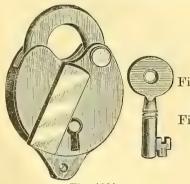


Fig. 1081.

BRASS SWITCH AND CAR PADLOCKS.

297

SALOON LOCK AND LATCH.

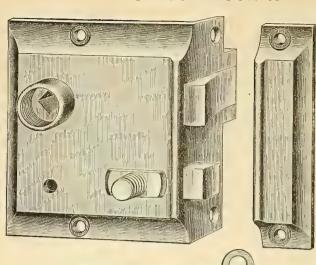


Fig. 1082.

Key operates Slide Bolt from outside the door with screwless knobs.

BRASS.

 $\frac{3}{8}$ -inch Bolt, with Slide Bolt, size $4\frac{3}{4}\times3\frac{5}{8}$ inches, with oval Brass Knob and escutcheon.

No. Per Doz. 145. \$72.00

Centre of Hub to front,

 $2\frac{3}{8}$ inches. Centre of Hub to Keyhole,

. 15 inches.

This lock is furnished with either Brass or Steel Keys.

CAR DOOR KNOBS.

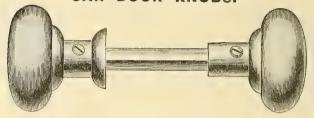


Fig. 1083. No. 182, §-Inon Plain Spindle.

No.	Diameter, Inches.	Per Doz. Pairs.
181.	$2\frac{1}{4}$	Nickel Plated \$20,00
182.	$2\frac{1}{4}$	Brass
185.	$2\frac{1}{4}$	Mineral Knob Japanned Shank and Rose 1.50
191.	$2\frac{1}{4}$	Porcelain " 2.00

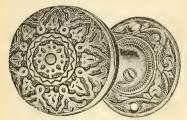


Fig. 1084.

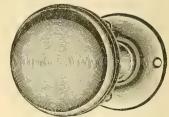


Fig. 1085.

REAL BRONZE POLISHED NATURAL COLOR.

 $\frac{3}{8}$ -Inch Spindle.

SALOON LATCHES.

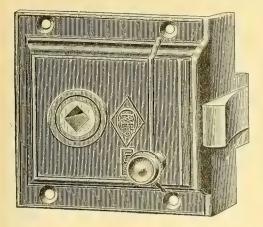




Fig. 1086.

JAPANNED.

를 inch Hub.

Iron Bolt with Stop.

Size,

4 x 4 inches.

No. Per Doz. 260 . \$13.50

Centre of Hub to front, 2½ inches.



 $\frac{3}{8}$ inch Hub.

Size, $3\frac{3}{4} \times 3\frac{1}{4}$ inches.

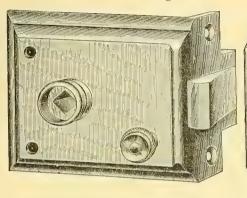
No. 261. Brass Bolt with Stop. 263 ""Slide Bolt.

Centre of Hub to front $2\frac{1}{2}$ inches.

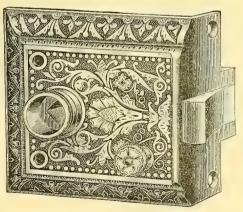
Brass, Nickel Plated,
No. Per Doz. Per Doz.
261 \$36.00 \$40.00
263 36.00 40.00

ORNAMENTED,

REAL BRONZE,
POLISHED NATURAL
COLOR. $\frac{3}{8}$ inch Hub.
Size, $3\frac{3}{4} \times 3\frac{3}{4}$ inches.
Centre of Hub to front, $2\frac{1}{8}$ inches.











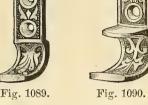
For	knobs	, see	page	
	29	98.		
Class.	11	farm	Lodo:	4

Car locks furnished to order to fit any key desired.

Illustrations half size.

CAR BLIND LIFTS AND PULLS.







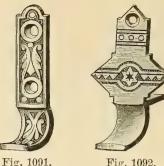




Fig.	1093	
	D T	

BURNET

COMPANY,

115. 1000.	115. 1000.	1 15. 1001.	rig.	100~.		T. 15. 1	.000
No.	Size, Inches.					Ι	er Doz.
Fig. 1089.	$2\frac{1}{4}$	Real Bronze	, polished				\$2.00
Fig. 1090.	$2\frac{3}{4}$	66	66				2.75
Fig. 1091.	3	4.6	6.		•		2.50
Fig. 1092.	3	46	. 6				2.50
Fig. 1093.	3	6 6	6.6		•	9	2.75

CAR WINDOW LIFTS.









Fig. 1094.

Fig. 1095.

Fig. 1096.

Fig. 1097.

5	Ů.	O		 5		
No.	Size, Inches.				P	er Doz.
Fig. 1094.	$2\frac{1}{8}x1\frac{3}{4}$	Real Bron	ze, polished			\$2.00
Fig. 1095.	$1\frac{1}{2}x1\frac{1}{2}$	6.6	6.6			2.25
Fig. 1096.	$\frac{7}{8}$ x $1\frac{3}{4}$	66	. "			1.80
Fig. 1097.	$1\frac{1}{4}$ x $2\frac{3}{8}$	4.6	4.6			2.75

PUSH CAR WINDOW LIFT.

BLIND BOLT.



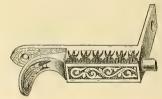


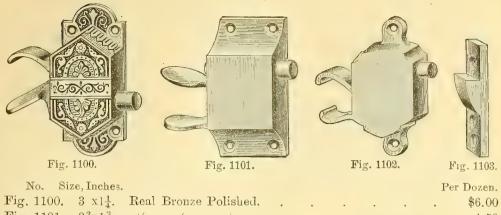
Fig. 1098.

Fig. 1099.

No.	Size, Inches.			P	er Doz.
Fig. 1098.	$3\frac{1}{8}x1\frac{5}{8}$	Real Bronze, po	olished .		\$3.50
Fig. 1099.	3 x \frac{5}{8}	٤	• •		5.00

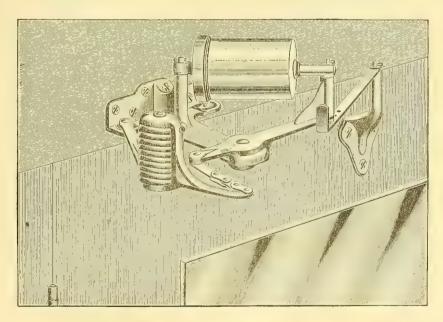
All the above are one dozen in a box, packed with screws.

CAR WINDOW LOCKS, WITHOUT STOPS.



No. Siz	ze, Inches.								Pe	er Dozen.
Fig. 1100.	$3 \times 1\frac{1}{4}$.	Real	Bronze	Polished,	٠					\$6.00
Fig. 1101.				6 %			•			4.50
Fig. 1102.	$1\frac{1}{4}x^{2}\frac{3}{4}$.	4.4	* 6	4.6	.′					4.50
Stops (Fig.	1103) for	Car	Window	Locks (F	igs. 1	100,	1101,	1102)		1.25

HOME DOOR CHECK FOR CAR DOORS.



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Fig. 1104.

This Check has been in successful operation on many prominent railways for several years, and is the only check which successfully meets the severe demands of car service.

No.	PNEUMATIC.	Each.
	Bronze Plated with Nickel-plated Cylinder,	\$5 45
	One in a box, Packed with screws. Full directions for putting on	
	packed with each.	

COLUMBIA PNEUMATIC DOOR CHECK AND SPRING.

GOLD BRONZE FINISH.

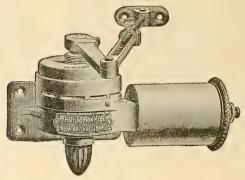


Fig. 1105.

ATTACHED TO DOOR, AND EXERTING A PUSHING ACTION.

No.						Each.
450.	For light inside doors					\$6.50
451.	" inside doors, not more than 3 ft. wide, and	for	outside	doo	rs,	•
	not more than $2\frac{1}{2}$ ft. wide					8.15
452	For heavy inside doors					8.80
453.	" outside doors, not more than 3 ft. wide .					9.75
454.	"heavy outside doors		•			13.20
455.	" (extra strong spring)		•			13.20

ATTACHED TO DOOR AND EXERTING A PULLING ACTION.

1450. For light inside doors	\$6.50
1451. "inside doors, not more than 3 ft. wide, and for outside doors,	
not more than $2\frac{1}{2}$ ft. wide	
1452. For heavy inside doors	8.80
1453. "outside doors, not more than 3 ft. wide	9.75
1454. "hervy outside doors	13.20
1455. " (extra strong spring)	13.20
OURO OURON TO 15 1/5 51 T	W
2450-2450S. For light inside doors	\$7.50
2451-2451S. "inside doors, not more than 3 ft. wide, and for outside	
doors, not more than $2\frac{1}{2}$ ft. wide	9.10
2452-2452S. For heavy inside doors	9.75
2453-2453S. "outside doors, not more than 3 feet wide"	10.75
2454-2454S. "heavy outside doors	
2455-2455S. "" " (extra strong spring).	

These door checks and springs may be used for either right or left hand doors. Full directions for applying and reversing are packed with each check.

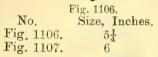
Nos.	450 to 455.	Applied	to right	hand door	hinge	side.
6.6	1450 to 1455.	. 6	66	6.6	casing	66
٠ د	2450 to 2455.		to left		٠, ٠	
. 6	2450S to 2455S		to right	6.6		66

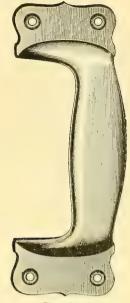
Numbers with "S" added have bracket to go on casing.

DOOR PULLS.

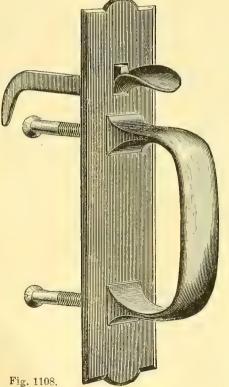
Illustrations Half Size.







	CAST	META	L.	Fig.	1107.		
				Ü		P	er Doz.
	Bronze	finish					\$7.35
66	6.6	66					11.40



DOOR HANDLES.

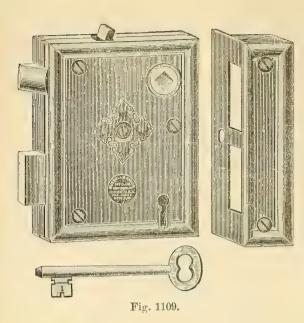
JAPANNED.

Either Right or Left Hand, Complete with Latch Guide and Outch.

No.	Size, Inches.	Per Doz.
Fig. 1108.	8x1 7	\$3.60

303

WROUGHT STEEL UPRIGHT RIM KNOB LOCKS.



Janus Face, Reversible Latch Bolt, Steel Tumblers, Nickelplated Keys, with stop.

IVORY BLACK CASES.

Size, $4x3\frac{1}{8}$ Inches.

 No.
 Bolts.
 Tumblers.
 Changes.

 3800
 Iron
 1
 4

 3804
 Brass
 1
 4

Centre of hub to keyhole, $2\frac{1}{2}$ in.

''

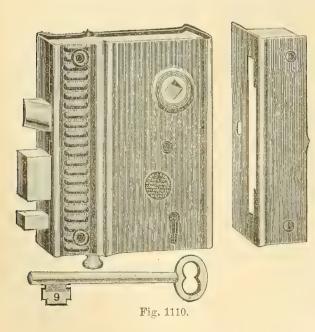
front, $2\frac{1}{16}$ "

To change the hand, take off the cap and turn over the latch.

PRICE	
-------	--

No.		Per	r Dozen.
3800			\$4.10
3804			5.20

WROUGHT STEEL UPRIGHT RIM KNOB LOCKS.



Janus Face, Reversible Latch Bolt, Steel Tumblers, Nickelplated Solid Keys.

IVORY BLACK CASES.

With Steel Solid Bolt. Size, $4\frac{1}{4} \times 3\frac{3}{8}$ Inches.

 No.
 Bolts.
 Tumblers.
 Changes.

 3830
 Steel
 1
 12

 3834
 Brass
 1
 12

Centre of hub to keyhole, $2\frac{6}{16}$ in.

To change the hand, take off the cap and turn over the latch

PRICE.

No.		P	er Dozen.
3830			\$7.15
3834	0		9.45

Illustrations Half Size.

UPRICHT RIM KNOB LOCKS.

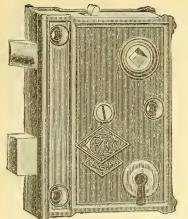


Fig. 1111.

Janus Face, Reversible Latch Bolt, Solid Keys.

WITH STOP.

Size, . 4x3 Inches.

No. 1888. Iron Bolts, Per doz., \$2.75 No. 0888. Brass " . . 66 66 5.20

Centre of hub to front, 21 inches.

To change hand, take off cap, and turn over latch and hub.

WITH SLIDE BOLT.

No. 855. Iron Bolts, . Per doz., \$3.60 Brass " . . No. 0857. 6.20

Illustration half size.

WROUGHT STEEL HORIZONTAL RIM KNOB LOCKS.

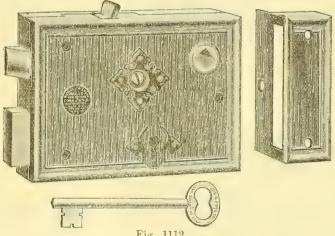


Fig. 1112.

Janus Face, Reversible Latch Bolt, Steel Tumblers, Solid Keys.

WITH STOP. IVORY BLACK CASES.

Bolts. No. Size, Inches. Tumblers. Changes. Per Dozen. 3200 Steel 1 \$4.40 43x31 4 3204 48x34 Brass 5.55

> Nickel-plated Keys. Centre of hub to front, 314 inches.

WITHOUT STOP.

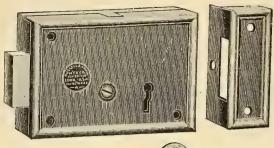
"City Pattern" Hub and Key hele in Horizontal Alignment.

Bolts. Tumblers. Changes. Per Dozen.
Brass Size, Inches. No. \$6.05 3249 43x3 Brass 1

Centre of hub to front, $4\frac{1}{4}$ inches. Illustration half size.

305

WROUGHT STEEL HORIZONTAL RIM CLOSET OR DEAD LOCKS.





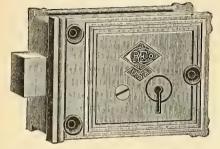
NICKEL-PLATED SOLID KEYS. IVORY BLACK CASES.

Size, 23x2 inches.

No. Bolt. Changes. Per Doz. 3600. Iron. 4 \$2.60 \$2.60 \$4.40

Double-throw Bolts. Size, $3\frac{1}{2}x2\frac{1}{2}$ inches.

No. Bolt. Change. Per Doz. 3610. Iron. 4 \$4 10 Key-hole to front, $2\frac{1}{8}$ inches.



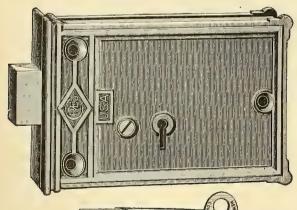
NICKEL-PLATED SOLID STEEL KEYS.

Size, $3\frac{1}{2}x2\frac{1}{2}$ inches.

No. Bolt. Tumblers. Changes. Per Doz. 1607. Iron. 1 12 \$3.90

Key-hole to front, $2\frac{1}{2}$ inches.



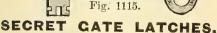


NICKEL-PLATED SOLID STEEL KEYS.

Size, $5x3\frac{3}{8}$ inches.

No. Bolt. Changes. Per Doz. 1613. Iron. 6 \$8.15

Key-hole to front, $2\frac{7}{16}$ inches.



Size, 21x2 inches.

No. Case, Bolt, Per Doz. 556. Iron Japanned, Iron, \$10.90 656. Bronze, Bronze, 21.15 Above illustrations half size.

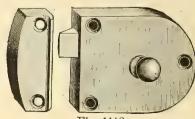


Fig. 1116.

WROUGHT STEEL HORIZONTAL RIM KNOB LATCHES.

Fig. 1117.

Iron Bolt and Hub. Size, 4x21 Inches.

Size, 4x2½ Inches.

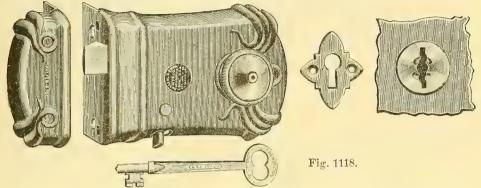
No. 3550. Per Dozen, \$2 45

With Steel Slide Bolt.

Iron Bolt and Hub, Brass
Knob.

No. 3552. Per Dozen, \$3.25 Centre of hub to front, 23 in.

WROUGHT STEEL HORIZONTAL RIM NICHT LATCHES.



For Right or Left Hand Doors. Two Nickel-plated Solid Steel Keys.

WITH STOP. IVORY BLACK CASES.

No. Size Inches. Bolt. Turn Kuob. Tumbler. Changes. Per Dozen. 3765 $4x2\frac{1}{2}$ Iron Brass 1 6 \$8.80 Key to front, $2\frac{\pi}{6}$ inches.

REAL BRONZE PLATE ESCUTCHEONS, TWO NICKEL-PLATED STEEL KEYS, WITH CYLINDER AND STOP.

For 1 to 2 inch Right or Left Hand Doors.

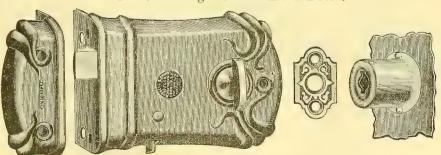




Fig. 1119.

Size, Inches. Bol. Turn Knob. No. Tumblers. Changes. Per Dozen. $4x2\frac{1}{5}$ Iron Brass 3767 3 24 \$10.60 4x21 Brass Brass 3 34 12 20 3768 Key to front, $2\frac{7}{8}$ inches. Above illustrations half size, 307

HORIZONTAL RIM NICHT LATCHES, WITH CYLINDER.

Real Bronze Plate, Escutcheon, two Nickel plated Steel Keys

For 1 to 2 inch right or left hand doors.

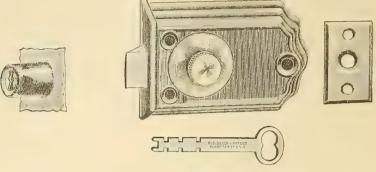


Fig. 1120.

No. Size, Inches. Bolt. Slide Knob. Tumblers. Changes, Per Doz. 669. $3\frac{1}{2}x^2\frac{1}{4}$ Iron. Nickel-Plated. 3 21 \$8.15

Key to front, 2½ inches.

CRZMI

COMPANY,

RUSSWIN HORIZONTAL RIM NICHT LATCHES, PIN TUMBLER.

For right or left hand doors.

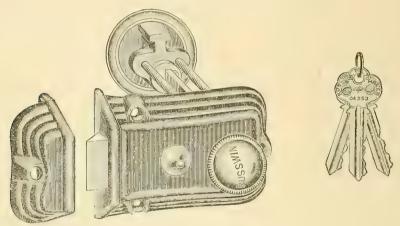


Fig. 1121.

THREE COLD-PLATED CERMAN SILVER KEYS, WITH STOP.

Adjustable, for $1\frac{1}{4}$ to 3 inch doors.

No. Size, Inches.

P1290. 3\frac{5}{8}\times 2\frac{3}{8}. Japanned Case, Bronze Bolt and Turn Knob . \$30.90

Key-hole to edge of door, 2\frac{1}{9} inches.

Above illustrations half size,

UPRICHT RIM DEAD LOCKS.

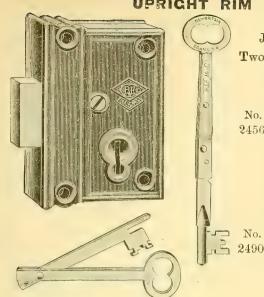


Fig. 1122.

Janus Face, for Narrow Style Doors; Two Nickel-plated Folding Steel Keys.

Size, $4x2\frac{1}{2}$ Inches.

No. Bolt. Tumblers. Changes. 2456 Iron 1 12

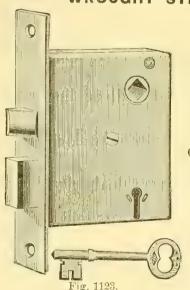
Per dozen, \$14.65

Key to front, 1½ Inches.

Size, 5x3½ Inches.

Bolt. Tumblers. Changes. Iron 1 20
Per dozen, \$15.45.
Key to front, 23 Inches.

WROUGHT STEEL MORTISE KNOB LOCKS.



Reversible Latch Bolt, Nickel-plated Solid Keys.

Thickness of Case, ½ Inch.

Size of front, $5\frac{1}{4}$ x1 Inch.

Oroide Finish Cases.

No. 1730. Size, $3\frac{1}{2}x3$ Inches.

Oroide Finish Steel Front. Oroide Finish Iron Bolts.

4 Changes.

Per dozen, \$4.10

No. 1734. Size, 3½x3 Inches.

Polished Brass Front and Bolts.

WROUGHT STEEL MORTISE KNOB LOCKS. EASY SPRING.

Reversible Latch Bolt, Nickel-plated Solid Steel Keys.

Wrought Steel Hub and Tumblers.

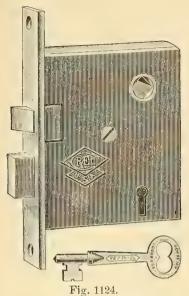
Thickness of Case, ½ Inch.

Size of Front, 5½x1 Inch.

Oroide Finish Cases. Per Dozen. Size, Inches. Front and Bolts. Tumblers. Changes. No. 1789 $3\frac{1}{2}x3$ Brass 12 \$8.95 $8x_{\overline{4}}^{\overline{1}}$ 8 3 1789至 Brass 24 12.20

Centre of Hub to Front, $2\frac{3}{8}$ Inches. Centre of Hub to Key-hole, $2\frac{1}{16}$ Inches. To change the Hand, take off the Cap and turn over the Latch.

MORTISE KNOB LOCKS, REVERSIBLE LATCH BOLT, SOLID KEYS.



No.	Size Inches.	Size of Front, Inches.
2065	$3\frac{1}{2} \times 3\frac{1}{8}$	$5\frac{1}{4} \times \frac{7}{8}$

Front and Bolts Brass, Nickel-plated Steel Keys.

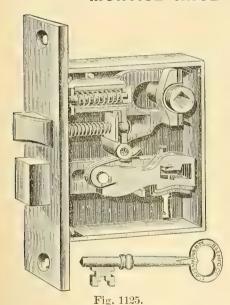
Price per Dozen, \$5.85.

${\bf Centre}$	of	Hub	${\rm to}$	Front		$2\frac{1}{4}$ in.
	دد	6.6	66	Keyhole		21 "

To Change the Hand, take off the Cap and turn over the Latch.

Thickness of Case, § inch.

MORTISE KNOB LOCKS, EASY SPRING.



Real Bronze Front and Bolts.

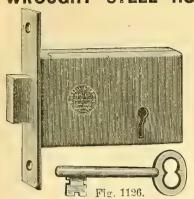
Reversible Latch Bolt, Nickel-plated Solid Keys.

Thickness of Case, 5 inch.

No.	$egin{array}{c} ext{Size}, \ ext{Inches}. \end{array}$	Size of Front, Inches.	Tumblers.	Change.	Per Dozen.
380	$3\frac{1}{2} \times 3\frac{5}{8}$	$5_{8}^{5} \times 1$	1	24	\$16.25
3803	34 x 35	5§ x 1	3	48	18.70

Centre of Hub to Front, $2\frac{5}{8}$ inches. Centre of Hub to Keyhole, $2\frac{3}{16}$ inches. To Change the Hand, take off the Cap and turn over the Latch.

WROUGHT STEEL HORIZONTAL MORTISE DEAD LOCKS.



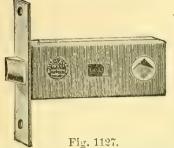
IVORY BLACK CASE.

Nickel-plated, Solid Keys.

Thickn	ess of case	0				½ ir	ch
Size of	front .				. 6	88x1 in	ich
Size of	case				$1\frac{7}{8}x$	$3\frac{1}{4}$ inc	aes
No.	Front and Bo	olts.	Cł	ange	es.	Per D	OZ.
1070.	Lacquered S	teel.		4		\$5	.70
$1073\frac{3}{4}$.	Brass.			24		12	.70

Key-hole to front, $2\frac{5}{16}$ inches.

WROUGHT STEEL MORTISE KNOB LATCHES.



Thickn	ess of ca	se						§ inch
Size of	front						٠	$3x_{8}^{7}$ inch
66	case .	•						$1\frac{1}{4}$ x3 inch
No.	(Oroid	e Fin	ish C	ases.			Per Doz.
1030.	Oroid	e Fin	ish F	'ront	and I	3oIt		\$1.65

WROUGHT STEEL RIM LOCK SETS.

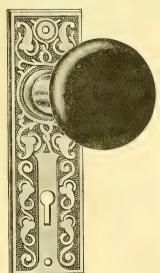
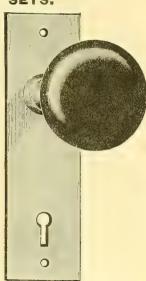


Fig. 1128.





98. Fig. 1139. Fig. 1130. WITH WROUGHT METAL ESCUTCHEONS, JET KNOBS.

 Set No.
 Lock No.
 Page.
 Escutcheons.
 Per Doz. Sets.

 Fig. 1128.
 3800-4
 304
 Bronze Plated.
 \$10.60

 Fig. 1129.
 "
 "
 10.60

 Fig. 1130.
 "
 Oroide Finish.
 9.45

Size of Knobs, 21 inches.

WROUGHT STEEL KNOB LATCH SETS.



Fig. 1131. Knob No. 7850. Rose 7853.



Fig. 1132. Knob No. 7850. Rose 7852.

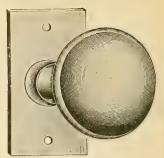


Fig. 1133, Knob No. 7385, Rose 7852.

Set No.	Latch No.	Knobs.	Rose.	Rose No.	Per Doz.
Fig. 1131	1030	7850	Bronze-plated	7 853	\$6 50
Fig. 1132	1030	7850	"	7852	7.00
Fig. 1133	1030	7385	66 66	7852	9.45
	Size of Kno	bs, $2\frac{1}{4}$ inches	. Size of Roses, 3:	x ₁ ½ inches	

DOOR KNOBS.



Fig. 1134.

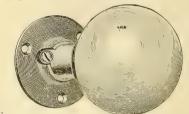


Fig. 1135.

BURNET COMPANY, NEW YORK.

Japanned Shank and Rose. Plain Spindles.

MI			

,1	Vos	WINERAL.	Per Dozen	Pairs
Rim.	Mortise.	Diam. of Knob.	Without Rose.	With Rose.
400R	400M	$2\frac{1}{4}$ inches, $\frac{5}{16}$ Spindle.	\$1.95	\$1.95
		PORCELAIN.		
300R	$300\mathbf{M}$	$2\frac{1}{4}$ inch \cdot , $\frac{5}{1.6}$ Spindle.	\$2.15	\$2.15



PLATE ESCUTCHEONS.

WROUGHT METAL.

	No.	Size, Inches.		Per Dozen.
Fig. 1136.	8525	$1\frac{3}{4}x1\frac{1}{8}$	Kahala Bronze	\$0.40

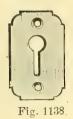


Fig. 1137.

BRONZE-PLATED.

No. Size, Inches. Per Dozen. 7225 $1\frac{3}{4}\times1\frac{1}{8}$ Wrought Metal \$0.60

CAR DOOR ESCUTCHEONS.



THE PORTE OF THE PROPERTY AND ASSESSED TO BE ADDRESSED AND ASSESSED TO BE ADDRESSED ASSESSED.



Fig. 1139.

For Brass	For Steel	Size		Per
Keys.	$\mathbf{Keys}.$	Inches.		Dozen.
Fig. 1138	Fig. 01138	$1\frac{3}{4} \times 1\frac{1}{8}$	Japanned	\$0.20
" 1138	·· 01138	$1\frac{3}{4} \times 1\frac{1}{8}$	Brass	.50
	· 1139	$7\frac{1}{4} \times 2\frac{1}{2}$	Real Bronze	7.00
	Fig. 1139 is for	Locks Nos. 250 to	255, see Page 318.	

LOOSE JOINT CAR DOOR BUTTS. WITH STEEL WASHERS.

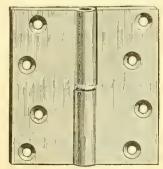
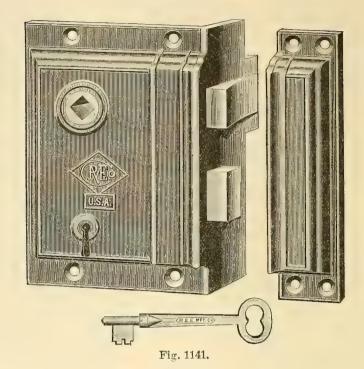


Fig. 1140.

No. 49, 3½ x 3 inches, . . . Polished Brass, . . . \$1.80 per pair.
Six pairs in a box. Packed with screws.
When ordering be particular to state Hand wanted.

CAR DOOR LOCKS.

Illustration Half Size.



JAPANNED.

Iron Bolts. 3 inch Hub.

NARROW PATTERN.

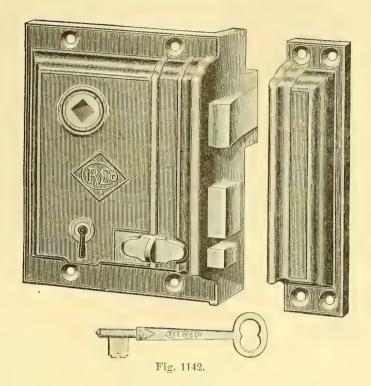
No.	Size, Inches.								Per Doz.
230.	$5\frac{1}{2}x3\frac{7}{8}$	17	umble	er					\$22.50
232.	$5\frac{1}{2}x3\frac{7}{8}$	3	6.6						24.50
Centre of Hu	ib to Front .								$2\frac{1}{2}$ inches
6.6	" Key-hole								$2\frac{1}{2}$ inches
			WIDE	DAT	TER	a.i			
			WIDE	PAI	IIEK				
No.	Size, Inches.								Per Doz.
235.	$5\frac{1}{2}x4\frac{1}{4}$	1 T	umbl	er					\$22.50
237.	$5\frac{1}{2}$ x $4\frac{1}{4}$	3	4.6						24.50
Centre of Hub to Front		•							3 inches
6.6	" Key-hole								2½ inches

These Locks are furnished with either Brass or Steel Keys. When ordering be particular to state Hand, also Key wanted.

For Knobs and Escutcheons see pages 298 and 313.

CAR DOOR LOCKS.

Illustration Half Size.



JAPANNED,

Iron Bolts, 3-inch Hub, with Slide Bolt.

NARROW PATTERN.

No.		Size,	Inches.						Per Doz.
$230\frac{1}{2}$		$5\frac{1}{2}$	$x 3\frac{7}{8}$		1 Tu	ımble	r		\$26.50
$232\frac{1}{2}$		$5\frac{1}{2}$	$x 3\frac{7}{8}$		3	6 b			28.50
Center of	Hub to	Front							$2\frac{1}{2}$ inches.
6.6	66	Key-ho	le .			٠			$2\frac{1}{2}$ "

WIDE PATTERN.

No.	Size, Inches.		Per Doz.
$235\frac{1}{2}$	$5\frac{1}{2} \times 4\frac{1}{4}$	1 Tumbler	\$26.50
$237\frac{1}{2}$	$5\frac{1}{2} \times 4\frac{1}{4}$	3 "	28.50

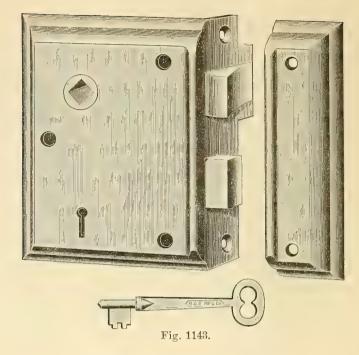
Centre of Hub to Front, 3 Inches.

These Locks are furnished with either Brass or Steel Keys.

When ordering be particular to state Hand, also Key wanted.

For Knobs and Escutcheons see pages 298 and 313.

CAR DOOR LOCK.



BRASS AND NICKEL-PLATED.

Brass Bolts, 3 inch Hub.

NARROW PATTERN.

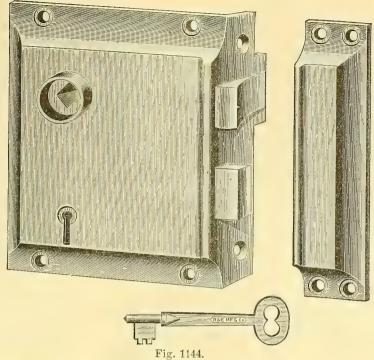
No. 240. 243.	Size, Inches, $5\frac{1}{5}x3\frac{7}{8}$, $5\frac{1}{2}x3\frac{7}{8}$	1 Tumbler			· ·	Brass, Per Doz. \$42.00 47.00	Nickel-plated, Per Doz. \$60.00 65.00	
WIDE PATTERN.								
No. 245. 247.	Size, Inches. $5\frac{1}{2}x4\frac{1}{4}$ $5\frac{1}{2}x4\frac{1}{4}$	1 Tumbler				Brass, Per Doz. \$42.00 47.00	Nickel-plated, Per Doz \$60.00 65.00	
		WIT	H SL	IDE	BOLT			
No. 245½. 247½.	Size, Inches. $5\frac{1}{2}x4\frac{1}{4}$ $5\frac{1}{2}x4\frac{1}{4}$	1 Tumbler				Brass, Per Doz. \$55.00 60.00	Nickel-plated, Per Doz. \$73.00 78.00	

Centre of Hub, Nos. 240, 242, $2\frac{3}{8}$ inches; others 3 inches. " " Key-hole, $2\frac{1}{2}$ inches.

These Locks furnished with either Brass or Steel Keys. When ordering be particular to state Hand, also Key wanted.

For Knobs and Escutcheons see pages 298 and 313.

CAR DOOR LOCKS



WITH SCREWLESS KNOBS.

Iron Bolts, 3-inch Hub.

Nos. 225 and 227 have Round Brass Knobs.

Nos. 275 and 277 have Oval Brass Knobs.

Centre	of Hub t	to Front			3 inches.
6.6	4.6	Key-hol	e		2^3_8 "

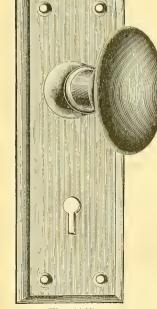
JAPANNED.

Nos.	Size, Inches.	Tumblers.	Per Doz.
225	$5\frac{1}{2} \times 4\frac{3}{8}$	1	\$53.00
227	$5\frac{1}{2} \times 4\frac{3}{8}$	3	55.00

BRASS.

Brass Bolts, 3 inch Hub.

No.	Size, Inches.	Tumblers	Per Doz.
275	$5\frac{1}{2} \times 4\frac{3}{8}$	1	\$99.00
277	$5\frac{1}{2} \times 4\frac{3}{8}$	3	123.00



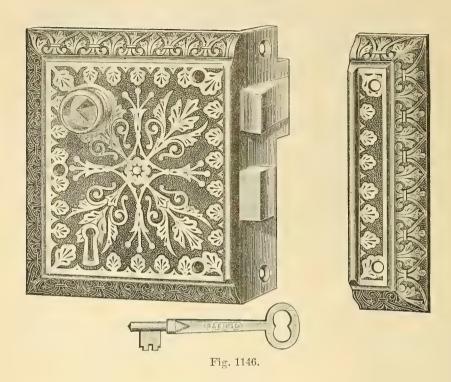
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Fig. 1145.

Illustrations are half size.

CAR DOOR LOCKS.

Illustration Half Size.



ORNAMENTED REAL BRONZE.

Finish Polished Bronze. 3 inch Hub.

No.	Size, Inches.								Per Doz.
250	$5\frac{1}{2}x4\frac{1}{4}$	Iron L	atch	Bolt	, 1	Tumbler			\$72.00
252	$5\frac{1}{2}x4\frac{1}{4}$		6.6	66	3	66			96.00
253	$5\frac{1}{2}x4\frac{1}{4}$	Brass	6.6	66	1	cc			84.00
255	$5\frac{1}{2}x4\frac{1}{4}$	66	6.6	4.6	3	6.6			108.00

Price includes Knobs and Escutcheons. For Knobs and Escutcheons see pages 298 and 313.

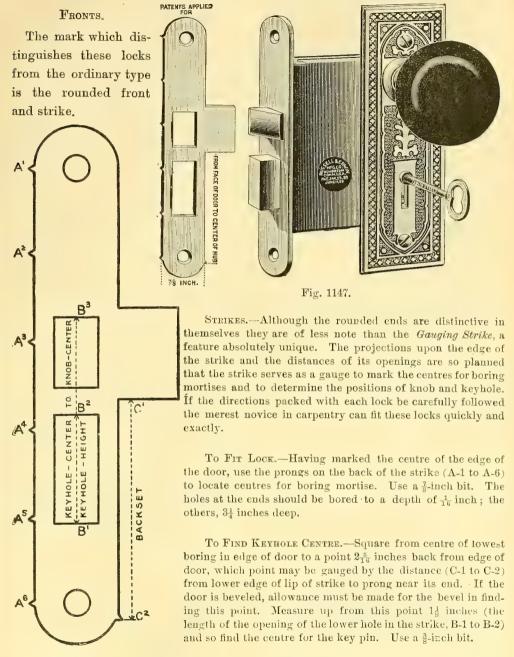
Centre of Hub to Front, 3 inches. Centre of Hub to Keyhole, 2½ inches.

Packed complete with Bronze Screws.

These Locks are furnished with either Brass or Steel Keys.

When ordering be particular to state Hand, also Key wanted.

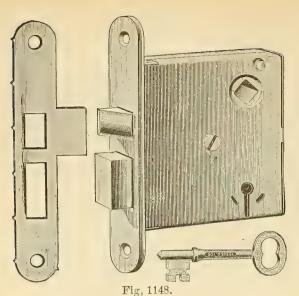
CENTURY SET, RAPID-MORTISE, ROUND END WROUGHT STEEL LOCKS.—(Nos. 2730 to 02734\frac{3}{3}, Page 320.)



To Find Centre for Knob.—The centre for the knob will be found at a point $2\frac{1}{8}$ inches above the centre already found for the key pin, which may be gauged by the distance (B-1 to B-3) from the bottom of the lower hole in the strike to the top of the upper hole.

To Fit Strike.—The strike, being of the same size as the front of the lock, is fitted in the same manner as the lock, all the holes being bored to the depth of $\frac{1}{16}$ inch with a $\frac{2}{8}$ -inch bit.

Price, Fig. 1147, Locks, Knobs and Escutcheons, per dozen, \$10.60.



WROUGHT STEEL ROUND END

KNOB LOCKS.

EASY SPRING.

Illustration Half Size,

PATENT APPLIED FOR.

Nos. 2730 to 27343.

REVERSIBLE LATCH BOLT, NICKEL-PLATED SOLID KEYS.

Thickness of Case, ½ inch; Size of Front, 5½ x⁷/₈ inch.

OROIDE FINISHED CASES.

No.	Size, inches.			Key	Tum- blers.	Chan- ges.	Per dozen.
2730	$3\frac{1}{2}x3$	Oroide Finish, St	on Bolts (Iron	1	4	\$4.10
2731	$3\frac{1}{2}x3$	" " St	eal Front	Steel	1	12	4.90
2734 $2734\frac{3}{4}$	$\frac{3\frac{1}{2}x3}{3\frac{1}{2}x3}$	Polished Brass Fr	cont and Bolts	66	$\frac{1}{3}$	$\begin{array}{c} 12 \\ 24 \end{array}$	7.14 12.20

Half dozen in a box. Packed complete with screws and escutcheons.

BRONZE-PLATED CASES, POLISHED FRONTS.

No. Si	ze, inches.		Key.	Tumblers.	Changes.	Per dozen.
02731	$3\frac{1}{2}x3$	Bronze-Plated Steel Front (" " Iron Bolts (Steel	1	12	\$
02734	$3\frac{1}{2}x3$	Bronze Front and Bolts	66	1	12	
$02734\frac{3}{4}$	$3\frac{1}{2}x3$	66 66 66	66	3	24	

Half dozen in a box. Packed with screws.

Centre of hub to front, $2\frac{5}{16}$ inches. Centre of hub to keyhole, $2\frac{1}{8}$ inches.

To change the hand, take off the cap and turn over the latch.

Any combined Roses and Escutcheons for $3\frac{1}{2}$ inch Mortise Locks may be used with these locks.

MASTER-KEYED LOCKS.

No.	Size, inches.	Front and Bolts.	Key Class No.	Tumblers.	Changes.	Per dozen.
$2734\frac{3}{4}M$	$3\frac{1}{2}x3$	Brass.	Steel 417½	3	25	\$
$02734\frac{3}{4}M$	$8_{1}^{1}x3$	Bronze.	" 417½	3	25	

They can be furnished in two sets of 25 (or less) each, with steel master-key to fit each set of 25.

COPYING PRESSES, RAILROAD PATTERNS.

Finished in Black Japan.

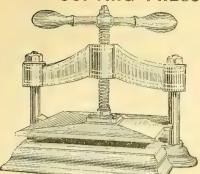


Fig. 1149.

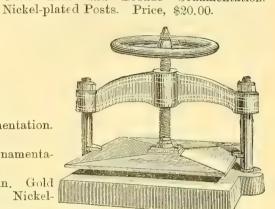
FIG. 1150. SHORT ARCH.

Receives a book 16x20 inches.

Finished in Black Japan. No Ornamentation. Price, \$18.00.

Finished in Black Japan. Bronze Ornamentation. Price, \$20.00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Nickelplated Posts. Price, \$24.00.



No Ornamentation.

FIG. 1149. SHORT ARCH.
Receives a book 14x18 inches

Price, \$15.00.

Finished in Black Japan. Bronze Ornamentation, Price, \$16.50.

Finished in Carmine and Black Japan, With Gold Leaf and Bronze Ornamentation.

Fig. 1150

FIG. 1151, SHORT ARCH.

Receives a book 18x23 inches.

Finished in Black Japan, No Ornamentation, Price, \$26,00.

Finished in Black Japan. Bronze Ornamentation. Price, \$28.00

Finished in Carmine and Black Japan, Gold Leaf and Bronze Ornamentation. Nickel-plated. Price, \$32 00.

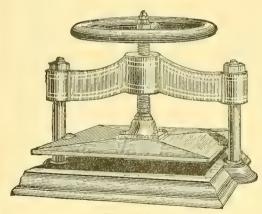


Fig. 1151.

FIG. 1152.

Receives a book 15x20 inches.

Finished in Black Japan, No Ornamentation. Price, \$18,00.

Finished in Black Japan. Bronze Ornamentation. Price, \$20.00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Price, \$22,00

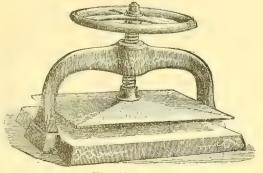


Fig. 1152.

THE BURNET COMPANY, NEW YORK

COPYING PRESSES, RAILROAD PATTERNS.

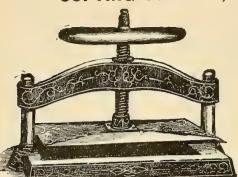


Fig. 1153.

FIG. 1154.

RECEIVES A BOOK 17x22 INCHES.

Finished in Black Japan. Bronze Ornamentation. Nickel-plated Posts.

Price, \$33.00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Nickel-plated Posts and Cap.

Price, \$36.00.

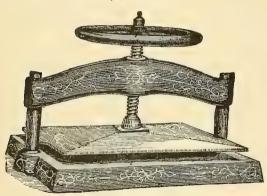


Fig. 1155.

FIG. 1156.

RECEIVES A BOOK 20x271 INCHES.

Finished in Black Japan. Bronze Ornamentation. Nickel-plated Posts.

Price, \$50 00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Nickel-plated Posts and Cap.

Price, \$53.00.

FIG. 1153.

RECEIVES A BOOK 15x20 INCHES. Finished in Black Japan. Bronze Ornamentation. Nickel-plated Posts.

Price, \$25.00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Nickel-plated Posts and Cap.

Price, \$27.00.

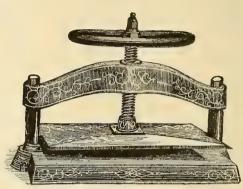


Fig. 1154.

FIG. 1155.

RECEIVES A BOOK 22x24 INCHES.

Finished in Black Japan, Bronze Ornamentation Nickel-plated Posts.

Price, \$48.00.

Finished in Carmine and Black Japan. Gold Leaf and Bronze Ornamentation. Nickel-plated Posts and Cap.

Price, \$51.00.

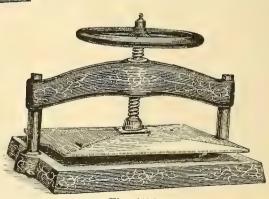


Fig. 1156.

COPYING PRESSES, PHOENIX PATTERNS.

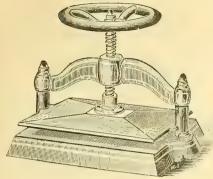


Fig. 1157.

Finished in Black Japan.

No Ornamentation.

						Tomoror	
No.	16	receives a	book :	10x12	in,	price,	\$5.25
6.6	17	6 6		10x15		- 66	6.00
66	18	* *		11x16	in.,	4.6	9.00
4.6	19	b 6		12x18	in,	6.6	11,75
66	20	₩ €		15x20	in.,	6.6	18.00
66	20.	1		16x20	in.,	+ 6	23.00
65	21			18x22	in.,	6.6	25.00
66	21	1		20x24	in.,	u +	28.00
	55			22x24			30,00
4.6	23	* *		20x27	in.,	. 6	32.00
	23.	1		22x30			56.00

COPY PRESS STANDS.



THE PARTY

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Fig. 1158.

RAILROAD COPY PRESS STAND.

Fig. 1159.

Very Heavy. Finished in Oil or Varnished. One Drawer and Slide for Book.

Dimensions of top . 24x37 inches $19x26x2\frac{1}{2}$ " Drawer, inside. No. 90, Oak, price

Fig. 1158.

Finished in Oil. One Drawer and Slide for Book.

Dimensions of top . . 17x24 inches Drawer, inside . $14x16x2\frac{1}{2}$ No. 1, Walnut, price \$8.00 No. 10, Oak, " 7.50

Finished in Oil, with Slide for Book, but without Drawer.

Dimensions of top . 17x24 inches No. 0, Walnut, price \$5.50 No. 00, Oak, 5.25

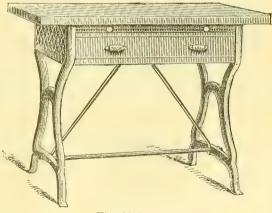


Fig. 1159.

WATER TUBS.



Fig. 1160.

Finished in Black Japan, Bronze Striping.

\$2.75 6.50

\$14.00

DIXON'S PENCILS FOR SPECIAL PURPOSES.

With Large Diameter Leads.

T DIXON'S OPERATORS PENCIL NESU

Fig. 1161.

300. Dixon's "Operator" Satin Finish, gold stamp, rich black lead, per gross, \$4.75.

CAR INSPECTOR'S PENCILS.

THEXON'S IN SECTION PENCIL 305

Fig. 1162.

No. 303. Dixon's Car Inspector Pencil, Satin Finish, gold stamp. Dixon's Car Inspector Pencil fully meets the various requirements of the committee appointed by the Master Car Builders' Association. The pencil makes a clear, black mark, which cannot easily be erased, is not hardened or spoiled by age. The leads are tough and strong, readily sharpened, but not easily broken. The marks do not smudge or run, and will never fade by exposure to light. There is no pencil made which is its equal for the work intended. Per gross, \$4.75.



Fig. 1163.

No. 400. Fine Cedar Finish, deep rich black lead. Per gross, \$7.75.

LUMBER PENCILS.



Fig. 1164.

No. 361. Dixon's Lumber Pencil, $4\frac{3}{4}$ in. long, $\frac{1}{2}$ in. in diameter, hexagon shape, japanned finish, $\frac{1}{2}$ gross in a box, three grades—hard, regular and soft. Per gross, \$

METAL WORKERS' CRAYONS.



Fig. 1165.

524. Sawed out of solid soapstone, flat shape, chisel point. Packed in ½ gross boxes. Per gross, \$3.25.

DIXON'S ARTISTS' PENCILS.

Packed in handsome white watered paper, gilt-trimmed boxes, with black and gold labels. One dozen in a box, three dozen in a carton.

They are made in hexagon shape only, beautifully finished in the natural color of the cedar wood, and are in eleven grades of leads, as follows, viz.:

Nos.	Grade Stamps.	Nos.	Grade Stamps.
210.	VVS—Very, very soft.	216.	MH—Medium hard.
211.	VS—Very soft.	217.	H-Hard.
212.	S—Soft.	218.	VH-Very hard.
213.	SM—Soft medium.	219.	VVII—Very, very hard.
214.	MB-Medium black.	$219\frac{1}{3}$.	VVVH-Very, very, very hard.
215.	M—Medium.	1 -	to the state of th

These leads are extra fine and perfectly graded. The hard grades are perfect for architects, draughtsmen and engineers. Per gross, \$9.00.

DIXON'S FINE OFFICE PENCILS.



Tas	44	00
Fig.		1515
4 450	4.7	00.

ROUND SHAPE	, FINI	SHED	IN THE	NAT	URAL CO	LOR OF	THE	CEDAR	WOOD.			
Grade Stamps			S	SM	мв	M	мн		VН			
Trade Numbers			141	142	142 ‡	143	$143\frac{1}{3}$	144	145			
ROUND SHAPE, "SATIN FINISH."												
Grade Stamps		S		S _M	МВ	M	мн	11	νн			
Trade Numbers	. 1	51	1511	152	1525	153	1535	154	155			
	D.C	MUMITS.	-		MAROO		_	101	100			
Grade Stamps .		ONU			MAROO	N FINIS	н.					
Trade Numbers			• •		• •			SM	M			
Trade Numbers	0		0 0	9	* 0 £			111	112			
ROUND SHAPE, GLOSSY BLACK FINISH.												
Grade Stamps .								S M	M			
Trade Numbers			•					106	107			
					.00 per gro	SS.			10.			
HEXAGON SHAP	E EIN											
	z, rin	HOREL				LOR O	- THE	CEDAR	WOOD.			
	o •		S	SM	M B	M	MH	Н	VH			
Trade Numbers			122	123	$123\frac{1}{2}$	124	$124\frac{1}{5}$	125	126			
	H	EXAC	ON SHA	PE. 6	SATIN	FINISH.	77					
Grade Stamps		S	SB	SM	мв	M	MH	H	VН			
Trade Numbers	. 1	66	$166\frac{1}{5}$	167	1673	168	1683		170			
			-		-		-	100	110			
Consider Channel	near	FCOM	SHAPE,	, FIN	E MARO	ON FIN	ISH.					
Grade Stamps .								S M				
Trade Numbers .								116	117			

THE REAL PROPERTY.

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All the above Hexagon shape \$6.75 per gross.

The above four styles of finish of Round Gilt, and three of Hexagon Gilt, comprise the assortment of Dixon's American Graphite Pencils, of the very finest style and quality, known to the trade as "fine goods.' They are put up in Dixon's patent dozen package (see above cut), and are packed in $\frac{1}{2}$ gross boxes.



Fig. 1167.

Cut shows full diameter, but reduced length.

These Pencils are made in Round shape and Hexagon shape, stamped in Gold, with No. 2 and No. 3 leads of high grade. They are fitted with Nickel Tips, having a screw-thread and carrying an Erasive Rubber of superior quality. They are finished in Black, Satin, Cedar and Maroon. Round, per gross, \$3.25; Hexagon, per gross, \$3.75.



Fig. 1168.

ROUND SHAPE, COLD STAMP, "DIXON'S BEST," HIGHLY FINISHED.

349. 7 inch, red lead Per gross, \$8.00

Packed ½ gross in box, with Dixon's patent dozen package.

DIXON'S FELT ERASIVE RUBBERS.



Fig. 1169. Full Size.

12 to 120 in lb. Per lb., \$1.00.



Fig. 1170. Full Size.

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OMPANY,

1 doz. on a card, 6 cards in a box. Per gross, \$5.00.

DIXON'S STANDARD CRAPHITE CREASE.

This is recommended for gears, for loose fitting journals and bearings, or wherever the conditions are such that an ordinarily stiff grease can be introduced. This grease is not intended for use in an oil cup, but will feed nicely through a tallow cup.

WATER-PROOF CRAPHITE CREASE.

For gears exposed to the action of water, for chains, cables, and wire ropes used in mines, quarries, etc., which are exposed to water, and for all other uses calling for a lubricant not affected by even running water. For railroad switches, interlockings, etc., it is without an equal.

PRICES OF STANDARD AND WATER-PROOF CREASE.

10 pound package .			\$1.50	50 pound packa	ge .		\$6.50
25 '7 .			3.50	100 "		_	12.00
	Ba	rrels o	of 400 lbs.	. 10 cents per lb.		•	

CRAPHITED WOOD CREASE.

FOR ELECTRIC CARS.

It does not cake in the gear cases, and it keeps the gears constantly and thoroughly lubricated, and at the same time prevents all drippings from the gear cases.

PRICE.

Barrels, about 300 lbs					6 cents per	lb.
Five barrel lots					5 "	66

GRAPHITE CURVE CREASE.

This grease is made to meet the demand of trolley car companies for a durable lubricant for curves and switches at a low price. Flake graphite is used, and the affinity for metal possessed by graphite makes it superior to any other form of lubricant. It is furnished in barrels of 400 to 500 pounds. Prices on application.

DIXON'S EVERLASTING CRAPHITE AXLE CREASE.

ASO ME
CE AMERICAN CO
EVERLASTING AXLE GREASE
AXLE GREASE
N Jos. Dixon Crucieleco.
JERSEY CITY,
N. J. U.S. P.
600
DIXON'S No 600
EVERICAN GRAPHITE POT Ruggies W. A. Langers Trucks
Por Ruggies, Wagons, Carriages, Trucks
, wagons, Carries

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Fig.	11	171

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UNINET COMPANY

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600		1 lb. box		\$0.15 each.
601		2		0 25 ''
603		10 lb. pail		1.20
624		25 lb. kegs		2.75 ''
625		50		5.00 "
626		100 "		9.00
627		bbls. ab't 350	lbs.,	.08½ per lb

DIXON'S BELT DRESSING.



Fig. 1172.

It absolutely prevents a belt from slipping, thoroughly preserves the leather, and protects the elasticity of the belt.

No.				Per lb.
665		10 lb. pail		30 ets.
666		25 "		25 "
667		50	:	22 "
668		100 lb. keg		20 "
669		Bbls., about 3	375 lb	18 "

DIXON'S SOLID BELT DRESSING.

Belt Dressing

Fig. 1173.

Made especially for those who prefer a solid dressing to the soft or paste dressing. Is put up in one pound bars in paper boxes. Twenty-five one pound bars in a case.

Price per case, \$6.00



Fig. 1174.

Far better and cheaper than Red Lead.

No.				Per	r 1b.	No.					Per	lb.
693	1 lb.	package		20 c	ents.	696	25 lb.	package			14 ce	ents.
694	5	6 %		18	6.6	697	50	٤			$13\frac{1}{2}$	6.6
695	10	6.6		15	66	698	100	6.6		o	13	6.6

DIXON'S FOUNDERS' PERFECT CORE WASH. MAKES SOUND, SMOOTH AND PERFECT CASTINGS.

It makes a hard skin or veneer on the mold, which will not rub off nor run before the hot metal.

Intended for heavy as well as light work. Specially useful for steel castings.

Boxes of 25, 50 and 100 lbs., 10 cents per lb.

DIXON'S PLUMBACO FACINGS, CALLED INDIA SILVER LEAD. HOW TO ORDER.

Barrels of 300 lbs.

One kind works with dry sand and is used as a wash. Another works with green sand and through a shake-bag. Still another with green sand, and is put on by the brush. Some facings require, for perfect lines, a little dusting of powdered charcoal. Some brands will "slick"—others not. So if the foundry superintendent will specify the kind of work he uses the facing on, his order can be more perfectly filled.

	LEADING	KINDS AND PRICES.		
Trade No.	Description.	· Use.	Price per lb.	in barrel lots.
660.	Plumbago Facing	Common Work .		
659.	German Bohemian Lead,			.04
604.	Ex Ex Plumbago Facing,	Stove Plate, Printing a	nd Copying	Press, .06
618.	India Silver Lead	T' 1/ () 1'		06
619.	India Silver Lead	Ordinary Job Work		06
621.		Heavy Casting and Ste	el Casting	

LAMP BLACK. STAR GERMANTOWN. Assorted

1s,	$\frac{1}{2}$ s,	$\frac{1}{4}$ S,	1s, $\frac{1}{2}$ s and $\frac{1}{4}$ s,	$\frac{1}{2}$ s and $\frac{1}{4}$ s,	<u>‡</u> s,
\$0.10	.12	.14	.12	.13	.18 per lb.
		Put	up in card-board boxes and	paper bags.	

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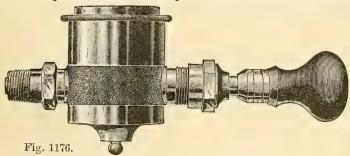
NO. I. VULCAN.

In bulk, Per pound, \$0 08½ Packages extra at cost.

DIXON'S AMERICAN FLAKE GRAPHITE, PERFECT LUBRICANT.

	No.	630.	$\frac{1}{4}$	lb.	paper cans,			\$0.10 each.
	No.	631.	$\frac{1}{2}$	6.6	- 66			.15 ''
DIXON'S	No.	632.	1	66	66 66			.20 ''
AMERICAN	No	633.	5	6.6	tin cans, screw	top,		.85 '
FLAKE GRAPHITE PERFECT	No.	634.	10	4.6		66		1.60 "
LUBRICANT.	No.	644.	25	6.6	boxes,			.14 per lb
JOS DIXBUCROLING.	No.	645.	50	٤.	66			.13 ''
VIL.	No.	646.	100	66	kegs,			.12 ''
Fig. 1175.	No.	647.	350	66	barrels,			-10 "

These are the trade numbers of our regular Flake. If finely pulverized Graphite is required, it should be specified, in addition to the trade numbers, as No. 2.



For the introduction of pure Flake Graphite into the cylinders of Stationary Engines, we know of no better device than this O.l Pump here illustrated.

DIXON'S SILLICA-GRAPHITE PAINT.

For Metal or Wood-work, Roofs, Bridges, Telegraph and Trolley Poles, Smokestacks, Boiler Fronts and Iron Construction Work of Buildings.

PACKAGES AND PRICES.

10	lbs. in	Tin Pail	, Thick,	Ground	in Oil	•			15 ce	nts pe	er Ib
25	6.6	- 6	6.6	+ 6					14	66	66
50	46	Keg,	6.6	6.6	66				131	4.6	6.6
100	66	66	6.6	4.6	66				13	6 4	44
450	6.6	Barrel,	4.6	4.6	66				12	6.6	60
5	gals.	Keg, Th		leady M	ixed .		•		\$1.30 pe	r gal,	
10	6		4.6	6.6					1.25	"	
25	6	6	6 6	4.6					1,20	66	
50	4	. 4							1.15	66	

A gallon ready mixed for the brush will cover about 600 square feet, one coat, on metal surfaces in good condition. For very high heat, and for surfaces exposed to the constant action of water, we recommend Dixon's Ready-Mixed Smoke stack Paint.

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ASPHALTUM LIQUID PAINTS IN ALL COLORS.

Colors,		1. 7, 9, 15,							. Per	gallon, \$0.75
6+	66	7 9, 15,					s.			
66	66		16, 17, 2						. 6	.85
66	No.	31, Brigh	it Red, ar	ıd No.	59, P	urple,	Barre	ls .		.85
	60	929	66		59,	66	Half	Barrels	s "	.90
6.6	46	31,	6.6	66	59,	66	in Pa	ils	. 6	.95
6 6	66	2 and 6,	Blue and	Green	n, Bar	rels			. 4	1.30
6.6	66	2 and 6,	66		Hal	lf Barr	els			1. 35
6.6	66	2 and 6,	66		in l	Pa ⁱ ls				1.4 0
6.6	-6	76, Outsi	de White	, Barr	els					1.25
6 -	46	76	46	Half	Barrel	ls .				1.30
4.4	66	76,	66	in Pa	ails .					' 1.35

All other colors (unless otherwise mentioned), including No. 76 inside White, at one uniform price, bbls., \$1.10; half bls., \$1.15; pails, \$1.20 per gallon.

We can recommend these paints to give entire satisfaction and are A1 in every respect. Samples sent on application.

WHITE LEAD.

In 25, 50 and 100 lb, kegs Per lb., \$

RAILROAD VARNISHES.

Car Inside Fin	nishing, per gallon	\$ Locomotive Finishing, per gallon	\$
" Outside	66	" Rubbing, "	
" Rubbing	6.6	"Ebonite," "	3.00

"NONPAREIL" JAPAN.

For a Dryer and Gold Size, put up in 1 gallon cans . . . Per gallon, \$2.25 This is one-third stronger than any other Dryer on the market.

RAILWAY COACH JAPAN.

Put up in 1 gallon cans Per gallon, \$2.25

PATENT WELDLESS COLD-DRAWN STEEL TUBES.

Price per Foot in Cents.

						TE	HCKNESS	of WA	LLS					
Outside Diameter,	3-16 or 18	1-16 or 16	15	5-64 or 14	3-32 or 13	12	1 8 or 11	10	3 16	1-4	5-16	3-8	7-16	1 2
Inches,	or 20 W. G.		W. G.			W.G.		W.G.						
38	30	30	31	32	33									
7 or 1	30	30	31	32	33	35	37							
$\frac{9}{16}$ or $\frac{5}{8}$	32	32	33	34	36	38	40	42	43					
$\frac{1}{1}\frac{1}{6}$ or $\frac{3}{4}$	34	34	36	38	39	41	43	45	47	55				
<u>7</u> 8	36	36	38	40	43	44	47	50	54	68				
1	38	33	42	44	46	50	53	58	64	75				
$1\frac{1}{8}$	41	41	44	47	50	54	58	66	73	87	98			
$1\frac{1}{4}$	44	44	47	50	54	59	64	73	81	98	109	121		
$1\frac{3}{8}$	47	47	51	54	58	65	70	80	90	108	121	137	148	
$1\frac{1}{2}$	50	50	54	58	62	72	76	84	100	122	136	154	170	181
$1\frac{5}{8}$	53	53	57	61	66	76	80	90	107	130	147	167	185	200
$1\frac{3}{4}$	55	55	60	65	69	79	84	96	114	139	157	180	200	216
1 7 8		58	63	68	73	83	89	101	120	148	169	193	214	233
2		61	66	72	77	87	93	108	125	156	180	206	228	250
$2\frac{1}{8}$			72	77	81	92	99	114	133	166	194	220	242	268
$2\frac{1}{4}$			77	81	85	96	104	123	141	176	208	233	255	285
23 8				85	90	107	111	128	148	187	221	248	273	303
$2\frac{1}{2}$				89	94	112	118	131	154	198	233	262	290	320
2 <u>5</u>				94	98	118	123	138	163	207	245	277	308	338
$2\frac{3}{4}$				98	102	120	127	144	171	216	256	291	325	355
3					110	130	137	156	187	233	278	319	356	390
$3\frac{1}{8}$					117	138	144	162	196	242	290	333	371	407
$3\frac{1}{4}$					124	145	150	168	204	250	301	347	386	423
38					130	150	156	174	212	259	313	361	401	441
$3\frac{1}{2}$					135	155	161	180	220	267	325	375	416	458
3_{4}^{3}							174	198	237	290	350	403	446	492
4							189	214	255	312	375	431	478	527

The above prices are for outside diameters. The bore of Tube can be ascertained by deducting thickness of walls from the given outside diameter. These Tubes are round, true to size, and smooth inside and out. The maximum length is 16 feet for sizes up to 3 inches outside diameter, and Tubes can be furnished of any length desired within that figure and without charge for cutting, except on Tubes shorter than 2 feet. In Tubes up to $1\frac{1}{2}$ inch outside diameter we can furnish 22 gauge at 2 cents per foot; over 20 gauge and 24 gauge at 6 cents per foot; over 20 gauge on order. Sizes not in stock it takes ordinarily about 90 days for order and importation.

SEAMLESS COPPER TUBING.

OUTSIDE DIAMETER.

Stub	s' Gaug	e the	Stand	lard.								P	rices	in ce	nts pe	or por	ind.
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11	9						31	29	28	27	26	25	23	22	21	20	20
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13	11				35	33	31	29	28	27	26	25	23	32	21	21	21
14	12			39	35	33	31	29	28	27	26	25	23	22	21	21	21
15	13			40	36	34	31	30	29	28	27	26	24	23	22	22	22
16	14			41	37	35	32	31	30	29	28	27	24	23	23	23	23
17	15			42	38	36	33	32	31	30	29	28	25	24	24	24	24
18	16	79	59	44	40	37	34	33	32	30	29	28	26	25	25	25	25
19	17	84	60	45	41	38	35	34	33	32	31	30	28	27	26	26	26
20	18-19	89	62	47	42	39	37	36	35	34	33	32	30	29	28	28	28
21	20	94	64	49	44	41	39	38	37	36	35	34	33	32	30	30	30
22	21	99	69	54	46	42	40	39	38	37	36	35	35	34	32	32	33
23	22	104	74	59	48	44	42	41	40	39	38	37	37	37	35	35	36
24	23	114	79	64	51	46	44	43	42	41	39	38	38	39	39	39	40
25	24	129	84	69	54	49	47	45	44	43	42	41	42	43			

OUTSIDE DIAMETER.

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IRON PIPE SIZES.

Sizes, inches Price, per pound,

For price of Brass Tubing deduct 3 cents per pound from above lists.

Note.—For diameters of the fractional parts of an inch where no price is given, take the column to the left of where such size would appear if designated

In ordering, be careful to state whether Tube is wanted O.G. (which is Stubs'), or N.G. (which is Brown & Sharpe's).

The above Tubing is in 12-foot lengths.

		SEA	MLE:	SS I	BRAS	8 S T	UBII	NG.			VIBINO	ì.	
Thick		eter, in Stubs'	Gauge	No.	. 1.	$\frac{\frac{5}{8}}{5}$ 1 6 .2	3 5 5 .5	$15^{\frac{7}{8}}$ 24 .	$114 \\ 22$	11/4 13 .20	1½ 13 .19	13 13 .18	
				,	J -			und ex TUE					
		Broy	N & S	HARPE'	s GADO	E THE	STAND	ARD.	OUTSID	E DIAM	ETER.		
Plain !	Round	Tube.	<u>3</u> in. ar	id up to	o 2 in.,	to No.	19 Gai	ige, inc	elusive,	per lb			\$0.35
		44	<u> </u>	6.6	34538	6.	4.6		66	44			.36 .38
	* *		<u>3</u>	* 1	1 5	41	* 6		66	6.6			.41
	66	,, I	ξ 1		28				4.5		•		.48 .65
	•	3 I	1	46	38 56 14 3 16	44	66		"	4.6			1.00
	n than	lin i		4.6		ecial	Ovei	r 3 in t	a. a.3½ in		19 in	 chisive	1.50 , \$0.45
2 in. at	r than nd up t	ö 3 in.,	to No.	19, incl	usive,	\$0.38	Over	$3\frac{1}{2}$ in.					
3 in. to	No. 1	9, inclu	sive	nner tl	ian No	. 40 . 19. B.	& S. 6	l auge,	add to	list as	follows		
No				20		21	22		23	24		25	26
Per lb.			Thin	.02		.04 26 B &	90. eD 2.	uge, sp	,08 r feiser	.12		.16	.20
	_	DIO				•		· ·	_		IDIN.	^	
	Р	RICE	. LI	ST			INC			, , ,	BIN	G	
				то				NGT	нъ.				
Longer	than 1	2 inche	o q		Add Per lb.	to list		ows: r2incl	hes to	4 inche	g .	Per	lb. 4c.
Over 6	inches	to 12 i	nches		4.4	2c.				3 "		. 100	6c.
' 4	6 6	6	6.6		64	3c.							
				RAS		CUT			PIN			_	
	R	DUND	HEAD			ED IN		POUND		APER	BOXE	S,	
	,				1	1		1	i .	1			
Inch.	1 g	1/4	38	$\frac{1}{2}$	5 8	3 4	.7	1	1 ½	11/4	11/2	$1\frac{3}{4}$	2
10	316	1 1	75	$\frac{\frac{1}{2}}{73}$	72	71	70	69	$\frac{1\frac{1}{8}}{68}$	67	66	65	65
10			75 76	$\frac{\frac{1}{2}}{73}$	$\frac{\frac{5}{8}}{72}$	71 72	$\frac{\frac{7}{8}}{70}$	$\frac{1}{69}$	$ \begin{array}{ c c c c c } \hline & 1\frac{1}{8} \\ \hline & 68 \\ & 69 \\ \hline \end{array} $	67 68	66 67	65 66	65 66
10 11 12 12 12			75	$\frac{\frac{1}{2}}{73}$	72	71	70	69	$\frac{1\frac{1}{8}}{68}$	67	66	65	65
10 11 12 12 12	90	83	75 76 77 78 80	$ \begin{array}{r} \frac{\frac{1}{2}}{73} \\ 74 \\ 75 \\ 76 \\ 77 \end{array} $	$ \begin{array}{ c c c } \hline $	71 72 73 74 75	$ \begin{array}{r} $	1 69 70 71 72 73	$ \begin{array}{ c c c } \hline 1\frac{1}{8} \\ \hline 68 \\ 69 \\ 70 \\ 71 \\ 72 \\ \end{array} $	67 68 69 70 71	66 67 68 69 70	65 66 67 69 70	65 66 67 69 70
10 11 12 12 12	90 95	83 85	75 76 77 78 80 82	$ \begin{array}{r} \frac{1}{2} \\ 73 \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \end{array} $	$ \begin{array}{c c} & \frac{5}{8} \\ & 72 \\ & 73 \\ & 74 \\ & 75 \\ & 76 \\ & 77 \end{array} $	71 72 73 74 75 76	$ \begin{array}{r} $	$ \begin{array}{c c} & 1 \\ \hline & 69 \\ & 70 \\ & 71 \\ & 72 \\ & 73 \\ & 74 \end{array} $	$ \begin{array}{c c} & 1\frac{1}{8} \\ \hline & 68 \\ & 69 \\ & 70 \\ & 71 \\ & 72 \\ & 73 \end{array} $	67 68 69 70 71 72	66 67 68 69 70 72	65 66 67 69 70 72	65 66 67 69 70 72
GAUGE SIZE 11 12 13 14 15 16 16	90	83	75 76 77 78 80	$ \begin{array}{r} \frac{\frac{1}{2}}{73} \\ 74 \\ 75 \\ 76 \\ 77 \end{array} $	$ \begin{array}{ c c c } \hline $	71 72 73 74 75	$ \begin{array}{r} $	1 69 70 71 72 73	$ \begin{array}{ c c c } \hline 1\frac{1}{8} \\ \hline 68 \\ 69 \\ 70 \\ 71 \\ 72 \\ \end{array} $	67 68 69 70 71	66 67 68 69 70	65 66 67 69 70	65 66 67 69 70
10 11 12 12 13 14 15 16 17 18 17 18 17 18 18 17 18	90 95 100 110 120	83 85 90 100 110	75 76 77 78 80 82 85 92 100	$ \begin{array}{r} $	72 73 74 75 76 77 80 87 94	71 72 73 74 75 76 78 85 92	70 71 72 73 74 75 76 83 90	1 69 70 71 72 73 74 75 81 90		67 68 69 70 71 72 74 80 92	66 67 68 69 70 72 74 80 92	65 66 67 69 70 72 74	65 66 67 69 70 72 75
MIRE GAUGE SIZE. 10 12 12 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	90 95 100 110 120 135	83 85 90 100 110 120	75 76 77 78 80 82 85 92 100 115	$ \begin{array}{c c} \hline 73 \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \\ 82 \\ 89 \\ 96 \\ 110 \\ \end{array} $	72 73 74 75 76 77 80 87 94 105	71 72 73 74 75 76 78 85 92 100	$ \begin{array}{r} \hline 70 \\ 71 \\ 72 \\ 73 \\ 74 \\ 75 \\ 76 \\ 83 \\ 90 \\ 100 \end{array} $	1 69 70 71 72 73 74 75 81	$ \begin{array}{ c c c } \hline & 1\frac{1}{8} \\ \hline & 68 \\ & 69 \\ & 70 \\ & 71 \\ & 72 \\ & 73 \\ & 74 \\ & 80 \\ & 90 \\ & 103 \\ \hline \end{array} $	67 68 69 70 71 72 74 80	66 67 68 69 70 72 74 80	65 66 67 69 70 72 74 81	65 66 67 69 70 72 75 82
10 11 12 12 13 14 14 15 16 16 17 18 18 19 20 21	90 95 100 110 120 135 155 175	83 85 90 100 110 120 135 155	75 76 77 78 80 82 85 92 100 115 125 145	$\begin{array}{c c} \frac{1}{2} \\ \hline 73 \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \\ 82 \\ 89 \\ 96 \\ 110 \\ 120 \\ 135 \\ \end{array}$	72 73 74 75 76 77 80 87 94 105 115 130	71 72 73 74 75 76 78 85 92 100 110 130	70 71 72 73 74 75 76 83 90	1 69 70 71 72 73 74 75 81 90 103		67 68 69 70 71 72 74 80 92 103	66 67 68 69 70 72 74 80 92	65 66 67 69 70 72 74 81	65 66 67 69 70 72 75 82
10 111 12 12 13 14 14 15 16 16 17 18 19 20	90 95 100 110 120 135 155	83 85 90 100 110 120 135	75 76 77 78 80 82 85 92 100 115 125	$\begin{array}{c c} \frac{\frac{1}{2}}{73} \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \\ 82 \\ 89 \\ 96 \\ 110 \\ 120 \\ \end{array}$	72 73 74 75 76 77 80 87 94 105 115	$\begin{array}{ c c c }\hline & & & & & \\\hline & & & & & \\\hline & & & & & \\\hline & & & &$	$ \begin{array}{r} $	1 69 70 71 72 73 74 75 81 90 103 115	$ \begin{array}{ c c c } \hline & 1\frac{1}{8} \\ \hline & 68 \\ & 69 \\ & 70 \\ & 71 \\ & 72 \\ & 73 \\ & 74 \\ & 80 \\ & 90 \\ & 103 \\ \hline \end{array} $	67 68 69 70 71 72 74 80 92 103	66 67 68 69 70 72 74 80 92	65 66 67 69 70 72 74 81	65 66 67 69 70 72 75 82
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MIRE GVACE SIZE 10 11 12 12 13 13 14 15 16 16 17 18 17 18 20 21 22 21 22	90 95 100 110 120 135 155 175 200	83 85 90 100 110 135 155 175	75 76 77 78 80 82 85 92 100 115 125 145 160	73 74 75 76 76 77 78 89 96 110 120 135 145	72 73 74 75 76 77 80 87 94 105 115 130 140 PRICE I	71 72 73 74 75 76 78 85 92 100 110 130 145	70 71 72 73 74 75 76 83 90 100 110 135 VS rs per 78 22	1 69 70 71 72 73 74 75 81 90 103 115 135 FLAT	1½ 68 69 70 71 72 73 74 80 90 103 115	67 68 69 70 71 72 74 80 92 103 115	66 67 68 69 70 72 74 80 92 105	65 66 67 69 70 72 74 81 93	65 66 67 69 70 72 75 82 95
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MIRE OF THE PROPERTY OF THE PR	90 95 100 110 120 135 155 175 200	83 85 90 100 110 135 155 175	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU	73 74 75 76 77 78 82 89 96 110 120 135 145 TCH	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRICE 1 24 24 26	71 72 73 74 75 76 78 85 92 100 110 130 145 PII ON CENT	70 71 72 73 74 75 76 83 90 100 110 135 WS 22 22 23	1 69 70 71 72 73 74 75 81 90 103 115 135	1½ 68 69 70 71 72 73 74 80 90 103 115 OR 1½ 20 20 21	67 68 69 70 71 72 74 80 92 103 115	66 67 68 69 70 72 74 80 92 105 	65 66 67 69 70 72 74 81 93 	65 66 67 69 70 72 75 82 95
MIRE OF THE PROPERTY OF THE PR	90 95 100 110 120 135 155 175 200	83 85 90 100 110 120 135 155 175 N E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU	$\begin{array}{c c} \frac{1}{2} \\ \hline 73 \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \\ 82 \\ 89 \\ 96 \\ 110 \\ 120 \\ 135 \\ 145 \\ \hline \end{array}$	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRIOE 1 \$\frac{5}{8}\$ 24 24 26 28 30	71 72 73 74 75 76 78 85 92 100 110 130 145 PIII IN CENT 23 24 26 27	$\begin{array}{c} \frac{7}{8} \\ \hline 70 \\ 71 \\ 72 \\ 73 \\ 74 \\ 75 \\ 76 \\ 83 \\ 90 \\ 100 \\ 110 \\ 135 \\ . \\ \\ \hline \begin{array}{c} \frac{7}{8} \\ \\ \frac{7}{8} \\ \\ 22 \\ 23 \\ 24 \\ 24 \\ \end{array}$	1 69 70 71 72 73 74 75 81 90 103 115 135	1 1 8 68 69 70 71 72 73 74 80 90 103 115	67 68 69 70 71 72 74 80 92 103 115	66 67 68 69 70 72 74 80 92 105 	65 66 67 69 70 72 74 81 93 	65 66 67 69 70 72 75 82 95
MIRE OF THE PROPERTY OF THE PR	90 95 100 110 120 135 155 175 200	83 85 90 100 110 120 135 155 175 DN E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU 3 29 29 32 34 37 40	73 74 75 76 77 78 82 89 96 110 120 135 145 7TCH	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRICE 1 24 26 28 30 32	71 72 73 74 75 76 78 85 92 100 110 130 145 PIII 23 24 26 27 28	70 71 72 73 74 75 76 83 90 100 110 135 . 1S. rs PER 7 22 23 24 24 24 25	1 69 70 70 71 72 73 74 75 81 90 103 115 135	1½ 68 69 70 71 72 73 74 80 90 103 115 OR 1½ 20 20 21 22 23 24	67 68 69 70 71 72 74 80 92 103 115 	66 67 68 69 70 72 74 80 92 105 	65 66 67 69 70 72 74 81 93 	65 66 67 69 70 72 75 82 95
HIGH SIZE SIZE SIZE SIZE SIZE SIZE SIZE SIZE	90 95 100 110 120 135 155 175 200 IRC	83 85 90 100 110 120 135 155 175 N E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU 38 29 29 32 34 37 40 42 44	$\begin{array}{c c} \frac{1}{2} \\ \hline 73 \\ 74 \\ 75 \\ 76 \\ 77 \\ 78 \\ 82 \\ 89 \\ 96 \\ 110 \\ 120 \\ 135 \\ 145 \\ \hline \end{array}$	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRIOE 1 \$\frac{5}{8}\$ 24 24 26 28 30	71 72 73 74 75 76 78 85 92 100 110 130 145 PIII IN CENT 23 24 26 27	$\begin{array}{c} \frac{7}{8} \\ \hline 70 \\ 71 \\ 72 \\ 73 \\ 74 \\ 75 \\ 76 \\ 83 \\ 90 \\ 100 \\ 110 \\ 135 \\ . \\ \\ \hline \begin{array}{c} \frac{7}{8} \\ \\ \frac{7}{8} \\ \\ 22 \\ 23 \\ 24 \\ 24 \\ \end{array}$	1 69 70 71 72 73 74 75 81 90 103 115 135	1 1 8 68 69 70 71 72 73 74 80 90 103 115	67 68 69 70 71 72 74 80 92 103 115	66 67 68 69 70 72 74 80 92 105 	65 66 67 69 70 72 74 81 93 	65 66 67 69 70 72 75 82 95
Hear Gauge Size 10 11 12 13 14 15 16 17 17 18 19 10 10 10 10 10 10 10	90 95 100 110 120 135 155 175 200 IRC	83 85 90 100 110 120 135 155 175 N E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU 29 29 32 34 37 40 42 44 47	73 74 75 76 77 78 82 89 96 110 120 135 145 TCH 26 28 30 33 36 37 39 42	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRIOE 1 24 24 26 28 30 32 33 35 37	71 72 73 74 75 76 78 85 92 100 110 130 145 I PII IN CENT 23 24 26 27 28 31 33	70 71 72 73 74 75 76 83 90 100 110 135 VS. 18 PER 22 23 24 24 25 26 28 30	1 69 70 71 72 73 74 75 81 90 103 115 135	1½ 68 69 70 71 72 73 74 80 90 103 115 1½ 20 20 21 22 23 24 25 27 29	67 68 69 70 71 72 74 80 92 103 115 	66 67 68 69 70 72 74 80 92 105	65 66 67 69 70 72 74 81 93 	65 66 67 69 70 72 75 82 95
Mine Gauge Size. Where Gauge Size. Where Gauge Size. Where Gauge Size. Where Gauge Size. Inch.	90 95 100 110 120 135 155 175 200 IRC	83 85 90 100 110 120 135 155 175 N E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU 3 29 29 32 34 37 40 42 44 47 52	73 74 75 76 77 78 82 89 96 110 120 135 145 7 7 26 28 30 33 36 37 39 42 47	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRIOE 1 \$\frac{5}{8}\$ 24 24 26 28 30 32 33 35 37 42	71 72 73 74 75 76 78 85 92 100 110 130 145 PIII IN CENT 23 24 26 27 28 29 31 33 37	70 71 72 73 74 75 76 83 90 100 110 135 VS. rs Per 22 22 23 24 24 25 26 28 30 35	1 69 70 71 72 73 74 75 81 90 103 115 135	1 1 8 68 69 70 71 72 73 74 80 90 103 115	67 68 69 70 71 72 74 80 92 103 115 	66 67 68 69 70 72 74 80 92 105 	65 66 67 69 70 72 74 81 93 17 17 17 17 19 20 22 24 26	2 16 16 16 17 19 20 22 24 26
Hear Gauge Size 10 11 12 13 14 15 16 17 17 18 19 10 10 10 10 10 10 10	90 95 100 110 120 135 155 175 200 IRC	83 85 90 100 110 120 135 155 175 N E	75 76 77 78 80 82 85 92 100 115 125 145 160 ESCU 29 29 32 34 37 40 42 44 47	73 74 75 76 77 78 82 89 96 110 120 135 145 TCH 26 28 30 33 36 37 39 42	72 73 74 75 76 77 80 87 94 105 115 130 140 IEON PRIOE 1 24 24 26 28 30 32 33 35 37	71 72 73 74 75 76 78 85 92 100 110 130 145 I PII IN CENT 23 24 26 27 28 31 33	70 71 72 73 74 75 76 83 90 100 110 135 VS. 18 PER 22 23 24 24 25 26 28 30	1 69 70 71 72 73 74 75 81 90 103 115 135	1½ 68 69 70 71 72 73 74 80 90 103 115 1½ 20 20 21 22 23 24 25 27 29	67 68 69 70 71 72 74 80 92 103 115 	66 67 68 69 70 72 74 80 92 105	65 66 67 69 70 72 74 81 93 17 17 17 17 19 20 22 24 26	2 16 16 16 17 19 20 22 24 26

In ordering Iron or Steel Pins please state if Hard or Soft Pins are required.

TABLE OF WEIGHTS OF SHEET COPPER

And Thickness by Stubs' or Birmingham Gauge.

WEIGHT IN POUNDS PER SHEET.

Sheets 14 inch x 48 inch to 48 inch x 72 inch.

Specific Gravity, 8,698.

Weight per cu. ft., 543.6 lbs., Soft Rolled.

24 E	9444
36x96in. Equal 24 sq. ft. to Sheet	4440 30 80 80 80 80 80 80 80 80 80 80 80 80 80
36x84inr Equal 21 sq. ft. to Sheet	$\begin{array}{c} 448883333311111111111111111111111111111$
Gxf2in. Equal 18 sq. ft. to Sheet	$ \begin{array}{c} \alpha & \alpha & \alpha & \alpha & \alpha & \alpha & \alpha & \alpha & \alpha & \alpha $
Ox96in. 1 qual 20 sq ft. to Sheet	$\begin{array}{c} 1888888888888888888888888888888888888$
30x84in. Fqual 17½ sq. ft to sheet	$ \begin{array}{c} \infty \cos \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega$
80x72in. Equal 15 sq. ft. to Sheet	$\begin{array}{c} 0.03331 - 1 - 1 - 1 - 1 - 1 - 1 \\ 0.000000000000000000000000000000000$
30x6Jin Equal 124 sq. ft to Sheet	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
24x96in. Equal 16 sq. ft to Sheet	88 88 88 88 88 88 88 88 88 88 88 88 88
24x60in. Equal 10 sq. ft to Sheet	00 - 1 - 1 - 1 - 1 - 0 - 0 - 0 - 0 - 0 -
24x48in. Equal 8 sq. ft. to Sheet	$\begin{array}{c} 111111111111111111111111111111111111$
14x48in. Eq.42-3 sq. ft. to Sheet	8000F000044888888888898999999999999999988699999999
Weight in ounces per sq. foot.	88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Weight in pour ds per sq. foot.	19.55 19.55 19.55 10.75 10
Thickness in fractions of inches.	7-16 full. 7-16 scant. 11-32 scant. 19-64 full. 9-33 15-64 13-64 13-64 11-64 11-64 11-64 11-64 11-64 scant. 11-64 11-64 scant.
Thickness in decim's less.	454.45.85.85.85.85.85.85.85.85.85.85.85.85.85
Stubs, Cauge No.	0000 0000 01000400000000000000000000000

SOFT ROLLED SHEET COPPER.

When ordering Sheet Copper, always state whether you require Soft or Cold Rolled or "Mirror Finish." If you require sheets, Tinned on one side or plain on both sides, give length and width desired. Give thickness by weight to square foot, or in parts of an inch, or by gauge; if by gauge, state whether by Stubs' or Brown & Sharpe's gauge.

Where an advance is charged, on account of thickness, quality, or size of sheet, the advance stated in list is to be added to the "Base" price.

Size	s of Sheets.	64 oz. and lover, 50 lb. sheet,30x60 and heav'r	32 oz. to 64 oz. 25 to 50 lb. sheet, 30 x 60.	24 oz. to 32 oz. 1834 to 251b. sheet, 30 x 60.	16 oz. to 24 oz. 12½ to 19¾ lb. sheet.30x60	15 oz. 11 to	12 oz. and 13 oz. 9½ to 11 lb. sheet £0x60	11 oz. 7¾ to 9¼ lb.	17% 1b. st
WIDTHS.	LENGTHS.			(DENTS PEI	R POUND.			
	Not longer than 72 ins.	Base	Base	Base	Base	1	2	3	6
Not wider than 30 ins.	Longer than 72 ins. Not longer than 96 ins.	Base	Base	Base	Base	1	3	6	9
	Longer than 96 ins.	Base	Base	Base	Base	3	6		1
	Not longer than 72 ins.	Base	Base	Base	Base	2	4	7	10
Wider than 30 ins.	Longer than 72 ins. Not longer than 96 ms.	Base	Base	Base	Base	2	6	9	
but not wider than 36 ics.	Longer than 96 ms. Not longer than 120 m.	Base	Base	Base	1	3	!		
	Longer than 120 ins.	Base	Base	1	2				
	Not longer than 72 ms.	Base	Base	1	3	4	7	10	
Wider than 36 ms.	Longer than 72 ins. Not longer than 96 ins.	Base	Base	1	3	5	8		
but not wider than 48 ins.	Longer than 96 ins. Not longer than 120 in.	Base	Base	2	4	8			
	Longer than 120 ms.	Base	1	3	6				
	Not longer than 72 ins.	Base	Base	1	3	6	11		
Wider than 48 ms. but not	Longer than 72 ins. Not longer than 96 ins.	Base	Base	2	4	9			
Wider	Longer than 96 ins. Not longer than 120 m.	Base	1	3	6				
	Longer than 120 ins.	1	2	4	8				
Wider	Not longer than 96 ins.	Base	1	3	8				
than 60 ins. but not wider	Longer than 96 ms. Not longer than 120 m.	Base	2	5	10				
than 72 ms.	Longer than 120 ins.	1	3	8	- Contraction Contraction				
Wider	Not longer than 96 ins.	1	3	6					
han 72 ins. but not wider	Longer than 96 ins. Not longer than 120 in.	2	4	17					-
han 108 in.	Longer than 120 ins.	3	5	9					
Wider than	Not longer than 182 in.	4	6						
108 ins.	Longer than 102 ms.	5	8						1

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COPPER CIRCLES, SEGMENTS AND PATTERN SHEETS. 3c. per lb. advance over price of sheets required to cut them from.

COLD OR HARD ROLLED COPPER.

14 oz. per square foot, and heavier, 1c. per lb. advance over the above prices. Lighter than 14 oz. per square foot, 2c. per lb. advance over the above prices.

STAR BRAND, COLD ROLLED "MIRROR FINISH" COPPER.
For Sheets up to and including 20 inches wide, add 1c. per lb. to price of Cold Rolled Copper of same thickness.

For Sheets wider than 20 inches, add 2c. per lb. to price of Cold Rolled Copper of same thickness.

ROUND BOLT COPPER.

3 inch diameter and over, Base price. 4 inch diameter, 2c. lb. advance over Base price. 1 and 1 inch diameter, 2c. lb. advance over Base price. Carried in stock in lengths of about 10 feet all sizes from \(\frac{1}{5} \) to 1\(\frac{1}{5} \) in. diameter, hard drawn.

ROLL AND SHEET BRASS.

BROWN & SHARPE'S GAUGE THE STANDARD.

Prices in Cents per pound.

Common) High Brass. Wider than and including.	. 2	12	14	16	18	20	22	24	26	28	30	32	34	36	38 - 40
To No. 20. inclusive Nos. 21, 22, 23 and 24 '' 25 and 26	.22 .22 .23	$.23$ $.24$ $.24\frac{1}{2}$.25 .26 .27	.27 .28 .29	.29 .30 .31	.31 .32 .33	.33 .34 .35	.36 .37 .38	.39 .40 .41	.42 .43 .44	.46 .47 .48	.50 .51 .52	.55 .56 .57	.60 .61 .63	.65 Special .68 price not less .71 than
" 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39	.42	.45	.49	.53	.58	.65	.75 80 cents.

Low Brass, 4 cents per lb. more than common High Brass.

The terms "High" and "Low" refer to the quality of the Brass and not the temper.

Low Brass contains a larger percentage of Copper.

Add 3 cent per lb. additional for each number thinner than Nos. 28 to 38 inclusive.
Add 7 cents per lb. for sheets cut to particular lengths, not sawed, of proportionate width. Add for polishing on one side, 40 cents per square foot; on both sides, double this price. Brazing, Spinning and Spring Brass, 1 cent more than common High Brass.

Extra Quality Brazing, Spinning and Spring Brass 2 cents more than common High Brass. All segments, pattern sheets and irregular shape blanks shall be charged at a price which will represent actual metal used at full price, accounting for full amount of scrap made at Association price, with full cost of labor added.

Circles cut from above metal of proportionate width, No. 10 and thinner 6 cents per lb.

THE NAME OF

4 5

Circles cut from above metal of proportionate width, thicker than No. 10, 10 cents per lb. additional.

All metal heavier than No. 6, B. & S. gauge, listed and charged as sawed metal, whether slit or sawed.

HICH BRASS, BRONZE, AND LOW BRASS RODS. PRICE LIST OF HIGH BRASS ROD.

Brown & Sharpe's Gau e the Standard.

½ inch to 1 inch diameter, both inclusive	, not	less	than	2 feet	lengths		Per	lb.,	24c.
No. 8, and less than $\frac{1}{4}$ inch diameter	1.6	6.6	4.4	6.6	6.0		6.6	6.6	26c.
Over 1 inch diameter	6.6	4.6	6.6	6.6	4.6		6.6	6.6	27c.
Smaller than No. 8 to No. 11 inclusive .	6.6	64	66	9.6	4.6		6.6	66	30e

Smaller than No. 11, see Wire List. Hexagon, Octagon and Square, 2 cents per pound ad-

vance over Round Rods.

Rods less than 2 ft. lengths, add to above prices for cutting: 12 in. to 24 in. . 2c. 4 in. to 6 in. . 5c. 9 in. to 12 in. . 3c. 2 in. to 4 in. . 8c. Shorter than 1 inch, special. 6 in. to 9 in. 4c. 1 in. to 2 in. . 12c.

GILDING and BRONZE Rods, add to above prices Per lb., 8c. Low Brass Rods. add to above prices

We can furnish Round Brass and Bronze Rod up to $1\frac{3}{4}$ in. diam., 18 feet long; up to 2 in. diam., 14 feet long; up to $2\frac{1}{2}$ in. diam., 10 feet long; up to $2\frac{3}{4}$ in. diam., 8 feet long; up to 3 in. diam., 7 feet long.

BRASS AND COPPER WIRE IN COILS.

Brown & Sharpe's Gauge.	Old English or London Gauge.	Soft and Hard High Brass.	Spring High Brass.	Low Brass.	Brenze and Copper,	Brown & Sharpe's Gauge.	Old English or London Gauge.	Soft and Hand High Brass.	Spring High Brass.	Low Brass.	Bronze and Copper.
All Nos, to No 10	All Nos.to No. 12	80 23	\$0.25	\$0 27	\$0.28	All Nos. to No.10	All os. to No. 12				
No. 10101 su	' 12 .109	.23	. 25	.27	.28	No. 251= .0169	No. 28 - 0165	\$.35	\$0.37	\$0.39	\$0.43
" 11 " .09074	" 13、" .095	.231	.251	.271	.284	** 26 ** .0159	" 29 " 0155	35	.37	.39	.43
" 12 " .03081	" 14 " .083	.231	.25	.27	.284	" 27 ° .0142	** 30 ** .013 5	.38	.40	.42	. 46
" 13 " .07196	" 15 " .072	. 234	.254	.27	.28}	** 28 ** .011.6	" 31 " 012.5	42	.44	.46	.51
" 14 " .06408	" 16 ' .065	. 234	.251	$.27\frac{1}{2}$.284	" 29 " 0+125	6 82 1 .0.1 5		.47	.49	.54
" 15 " .05707	" 17 " .058	.234	$.25\frac{1}{2}$.271	.28	" 30 · · · 010	** 33 ** .01025	.48	.50	.52	.62
" 16 ' ,0°082	" 18 " .049	.231	. 25 }		.281	" 31 " (0)	35 (1.009	.51	.53	.55	.67
" 17 " 04526	" 18§" .045	.24	-26	.28	.32	" 32 " .008	** 35}***.03%5	,55	.57	.59	.73
" 18 " .04(3	" 19 " .042	.24	.26	.28	.32	" 33 " .0071 " 34 " 0063	00 ,0010	.59	.61	.63	.82
" 19 " 036	" 20 ° .035	.25	.27	.29	.33	04 10000	01 .0000	.64	. 66	.68	.95
" 20 " .03196		.25	.27	.29	.33	00 .0000	01000.00	.70	.72	.74	1.30
" 21 " .0285	1 22 1 .0205 1 23 1 027	.26	.28	.30	.34	000 ,000	" 39 " .005 " 40 " .0045	.76	.78 1.02	1.04	$\frac{1.50}{1.70}$
" 21½" .027	, ,,,	.27	.29	.31	.35	37 ** .00445 ** 38 ** .004	40 .0043	1.00 1.30	1.32	1.34	2 00
" 22 " .0253	" 24 " .025 " 25 " .023	.28	,30	32	.36	14 39 14 00253		2.00	2.02	2.04	3.25
23 44 .0226	26 4 0205	30	.32	.34	.38	440 44 .00314		2.60	2.62	2.64	5.75
24 ' .0201 25 ' .0179	" 27 " .01875	.32	.34	.36	.40	40 .00914		2.00	w,02	~.04	9.10

Spring Wire, 2 cents per lb. advance. When ordering Brass Wire, state whether Soft, Hard or Spring Wire is wanted. Brass and Copper Wire to No. 21 inclusive, are numbered by Stubs' Gauge. No. 22 and finer by London Gauge. All orders in which the Gauge is not stated will be filled accordingly.

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DOUBLE CALVANIZED TELECRAPH AND TELEPHONE WIRE.

Of the Highest Electrical Qualities.

No. Birming- ham Gauge.	Diam in inches.	Weight in Lbs. per Mile.	Put up in Bundles of	Approxim E. B. B.	ate BreakingPounds B. B.			ge Resista ms at 68° E. B.	
4	.225	730	$\frac{1}{4}$ mile.	2,190	2,409	2,701	6.44	7.53	8,90
6	.192	540	<u> î</u> "	1,620	1,782	1,998	8.70	10.19	12.04
8	.162	380	1 46	1,140	1,254	1,406	12.37	14.47	17.10
9	.148	320	$\frac{1}{2}$ "	960	1,056	1,184	14 69	17.19	20.31
10	,135	260	1 46	780	858	962	18.08	21.15	25.00
11	.120	214	1/2 66	642	706	792	21.96	25.70	30.37
12	.105	165	1 "	495	545	611	28.48	33.33	39.39
14	.080	96	$\frac{1}{2}$ "	288	317	355	48.96	57.29	67 71

Price Quoted on Application.

The values given in this table are averages of a large number of tests. They are within the limits of the specifications of the Western Union Telegraph Company.

The average value of the mile-ohm is 4,700 for E. B. B. wire,

The average value of the mile-ohm is 5,500 for B. B. wire.

The average value of the mile ohm is 6,500 for Steel wire.

HARD-COPPER TELEGRAPH AND TELEPHONE WIRE.

Sizes, Weights and Strengths of Hard-copper Telegraph and Telephone Wire.

Number B. & S. Gauge.	Diameter in Inches	Weight in Pounds per Mile.	Breaking Strain in Pounds,	Resistance in International Ohms per Mile at 75° F.	Birmingham Gauge of E. B. B. Iron Wire of Equal Resistance.
9	.114	208	653	4.39	2
10	.102	166	540	5.49	3
11	.091	132	426	6.90	4
12	.081	105	334	8.70	6
13	.072	83	274	11.01	$6\frac{1}{2}$
14	.064	65	220	13.94	8
15	.057	52	174	17.57	9
16	.051	42	139	21.95	10
		TO '	4 1. /.		

Prices on Application.

FOR ELECTRIC WIRES OF ALL KINDS, SEE OUR ELECTRIC CATALOGUE.

IRON AND STEEL WIRE.

Bright Market Wire.	Annealed	Market Wire	$_{ m c}$. Anneale	ed Fence Wire,
Nos. 8 and 9. Annealed	Bessemer	Steel Wire	Bright	Charcoal Wire.
Coppered Market Wire.	Coppered	Farnitare Sp		
Fence Wire.				

GALVANIZED MARKET WIRE.

tie .								
Per lb	9	\$0.10	.11	$.11\frac{1}{2}$	$.12\frac{1}{2}$.14	.15	.16
Numbers		0000 to 9	10 and 11	12	13 and 16	15 and 16	17	18

TINNED WIRE.

Numbers	0 to 9	10 and 11	12 to 14	15 and 16	17	18
Per lb	\$0.15	.16	.17	$.17\frac{1}{2}$.18	$18\frac{1}{2}$

STRAIGHTENING AND CUTTING WIRE TO LENGTHS.

Numbers		OUUUU to a	0 10 8	10 and 11	12 to 16	17 to 20
Per lb		\$0.01	.02	.03	.04	.05
Cut into long	rthe	under 20 ins	ner lh	Cut into lengt	he over 20 inc	non lh

Cut into lengths under 20 ins, per lb., . . . Cut into lengths over 20 ins., per lk









Fig. 1177. Fig. 1178. Fig. 1179. PRICE LIST OF "IMPERIAL" COVERING Fig. 1180.

		_						14 04 -		
	lizes.	Cov'g	Ells.	Tees.	Valves.	Sizes.	Cov'g.	Ells.	Tees.	Valves.
-} to	$\frac{3}{4}$ inch,	\$0.22	\$0.23	\$0.30	\$0.30	$4\frac{1}{2}$ inch,	\$0.50	\$0.57	\$0.76	\$0.76
1 to	14 "	.25	.25	.32	.32	5 "	.55	.65	.88	.88
1 1/2	6.6	.27	.27	. 35	.35	6	.61	.72	1.00	1.00
2	6.6	.29	.29	.40	.40	7	.69	.82	1.15	1.15
21	4.6	.33	.35	.45	.45	8 "	.77	.95	1 30	1.30
3	4.6	.27	.40	.50	.50	9 46	.88	1.10	1.50	1.50
$3\frac{1}{5}$	4.6	.41	.45	.58	.58	10 ''	1.00	1.25	1.75	1.75
4	4.4	.46	.50	.66	.66	12 ''	1.25	1.50	2.00	2.00

The covering and fittings are furnished ready for application, a sufficient quantity of small staples being supplied with each shipment. It is made of successive layers of pure indented ashestos felt, wire stitched at the edges and covered with a heavy canvas jacket.

ASBESTOS MACNESIA MOULDED COVERING.



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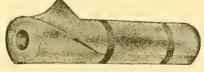




Fig. 1181.

Fig. 1182.

This covering is made of asbestos fibre and other light non-conductive materials. It is very strong, is absolutely fire-proof and is adapted for highest steam pressure. It will not crack and is made to fit pipes of all diameters from one half inch upward. The fittings are furnished of the same materials and fit perfectly. It can be easily applied to hot or cold pipes by any practical man. We always send with this covering sufficient metal bands to fasten it securely.

	PRICE	LIST	OF A	SBEST	OS MA	CNE	SIA	MOULDED	COVE	RING.	
Si	zes	Cov'g.	Ells.	Tees	Valves,	Si	izes.	Cov'g.	Ells.	Tees.	Valves
1 to	3 inch.	\$0.20	\$0.24	\$0.27	\$0.20	4 1/2	inch,	\$0.43	\$0.43	\$0.61	\$0.61
1 to	11 "	.21	.24	.30	.22	5	6.6	.49	.49	.67	.67
11	4 "	.23	.24	.33	.24	6	6.6	.56	.56	.73	.73
2	66	.26	.27	.36	.27	7	6.6	.64	.64	.83	.82
$\frac{21}{2}$	66	.29	.29	.39	.39	8	4.6	.70	.70	.91	.91
3	6.6	.32	.32	.45	.45	9	6.6	.77	.77	1.03	1.03
31	6.6	.35	.35	.50	.50	10	6.6	.85	.85	1.15	1.15
4	6.6	.38	.38	.55	.55	12	6.6	1.00	1.00	1.30	1.30

"EUREKA" PIPE COVERING.

For all low pressure steam pipes and hot water pipes, filling all requirements.

It is made of wool felt and asbestos. Fittings take same list as W. B. Covering.



W. B. PIPE COVERING.

Is composed of consecutive layers of asbestos about the pipe. Outside of this the wool felt with a canvas cover or jacket.

Fig. 1184.

			PRICE	LIST	OF "	W. B."	COVERING	ì.		
Si	zes.	Cov'g.	Ells.	Tees.	Valves.	Sizes.	Cov'g	Ells.	Ters.	Valves.
	inch,	\$0.20	\$0.25	\$0.27	\$0.25	$4\frac{1}{2}$ inc	h, \$0.46	\$0.46	\$0.72	\$0.72
2	1 1 66	.23	.25	.30	.27	5 "	.50	.50	.80	.80
11	- 4	.25	.25	.33	.33	6 "	.58	.58	.90	.90
2	4.6	.27	,27	.38	.38	17 66	.65	.65	1.00	1.00
$\frac{\tilde{2}}{2}$	6.6	.30	.30	.43	.43	8 "	.72	.72	1.10	1.10
$\tilde{3}^2$. 6	.34	.34	.49	.49	9 "	.80	.80	1.20	1.20
31	.6	.38	.38	.56	.56	10 "	.89	.89	1.35	1.35
4	44	.42	.42	.64	.64	12 "	1.00	1.00	1.50	1.50

PRICE LIST OF "EUREKA" COVERING. $4, 4\frac{1}{2}, 5, 6,$ 1 to $1\frac{1}{4}$, $1\frac{1}{2}$, $2, 2\frac{1}{2},$ 3. 35, Sizes, inch, $\frac{1}{2}$ to $\frac{3}{4}$, .20 .24 .31 .35 .39 .43 .47 .53 .60 .65 .70 .77 Cov'g, per ft. \$0.18

STANDARD STEAM, CAS AND WATER PIPE.

BLACK AND GALVANIZED.

Adopted February 15, 1900.

Size inside diameter			18	1/4	3 8	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	11
Price, per foot .		\$	$60.05\frac{1}{2}$	$.05rac{1}{2}$	$.05\frac{1}{2}$	$.08\frac{1}{2}$	$.11\frac{1}{2}$	$.16\frac{1}{2}$.22}	.27
Thickness .			.068	.088	.091	.109	.113	.134	.140	.145
Nominal weight, per f	oot		0.24	0.42	0.56	0.84	1.12	1.67	2.24	2.68
Number of threads			27	18	18	14	14	$11\frac{1}{2}$	11 ½	$11\frac{1}{2}$
Size inside diameter				2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Price, per foot .				\$0.36	$.57\frac{1}{2}$	$.75\frac{1}{2}$.95	1.08	1.30	1.45
Thickness				.154	.204	.217	.226	.237	.246	.259
Nominal weight, per f	oot			3.61	5.74	7.54	9.00	10.66	12.49	14.50
Number of threads				111	8	8	8	8	8	8
Size, inside diameter				6	7	8	9	10	11	12
Price, per foot .				\$1.88	2.35	2.82	3.40	4.25	4.75	5.20
Thickness				.280	.301	.322	.344	.366	.375	.375
Nominal weight, per f	oot			18.76	23.27	28.18	33.70	40.00	45.00	49.00
Number of threads				8	8	8	8	8	8	8

Unless otherwise ordered, black pipe, random lengths, with threads and couplings will be shipped. For cut lengths an extra charge will be made above random lengths. For pipe smoothed on the inside, known as plugged and reamed, an extra charge will be made above regular pipe. For galvanized pipe an extra charge will be made above black. For a phalted pipe an extra charge will be made above black.

EXTRA STRONG STEAM, CAS AND WATER PIPE.

Size, inches	18	$\frac{1}{4}$	38	$\frac{1}{2}$	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Actual outside diameter.	.405	.540	.675	.840	1.05	1.315	1.66	1.90	2.375
Nominal inside diameter	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933
Thickness	.100	.123	.127	.149	.157	.182	.194	.203	.221
Nominal weight, per foot	.29	.54	.74	1.09	1.39	2.17	3.00	3.63	5.02
Price, per foot	\$0.11	.11	.11	.12	.15	.22	.30	.36	.50
Size, inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Actual outside diameter.	2.875	3.50	4.00	4.50	5.00	5,563	6.625	7.625	8.625
Nominal inside diameter	2.315	2.892	3.358	3.818	4,280	4.813	5.750	6.625	7.625
Thickness	.283	.304	.321	.341	.360	.375	.437	500	.500
Nominal weight, per foot	7.67	10.25	12.47	14.97	18.22	20.54	28.58	37.67	43.00
Price, per foot	\$0.81	1.05	1 33	1.50	1.95	2.16	2.90	3.80	4.30

Extra Strong Pipe will be shipped in random lengths and plain ends unless otherwise ordered. For pipe fitted with threads and couplings an extra charge will be made above regular. For cut lengths an extra charge will be made above random lengths. For galvanized or asphalted an extra charge will be made above black.

DOUBLE EXTRA STRONG STEAM, CAS AND WATER PIPE.

Size, Inches		$\frac{1}{2}$	34	1	$1\frac{1}{4}$	11/3	2	$2\frac{1}{5}$	3
Actual Outside Diameter		.84	1.05	1.315	$1.\vec{6}6$	1.90	2.375	2.875	3.50
Nominal Inside Diameter		.244	.422	.587	.885	1.088	1.491	1.755	2.284
Thickness		.298	.314	.364	.388	.406	.442	.560	.608
Nominal Weight, per foot		1.70	2.44	3.65	5.20	6.40	9.02	13.68	18.56
Price, per foot		\$0.25	.30	.37	.52	.65	.95	1.37	1.92
Size, Inches			$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Actual Outside Diameter			$\frac{3\frac{1}{2}}{4.00}$	$\substack{4\\4.50}$	$\frac{4\frac{1}{2}}{5.00}$	5 5.563	6 6.625	7 7.625	8 8.625
								7 7.625 5.875	_
Actual Outside Diameter	:		4.00	4.50	$5.\tilde{0}0$	5.563	6.625	7.625	8.625
Actual Outside Diameter Nominal Inside Diameter			$4.00 \\ 2.716 \\ .642$	$\frac{4.50}{3.136}$	$5.\tilde{0}0 \\ 3.564$	$5.563 \\ 4.063$	$6.625 \\ 4.875$	$7.625 \\ 5.875$	8.625 6.875

Double Extra Strong Pipe will be shipped in random lengths and plain ends unless otherwise ordered. For pipe fitted with threads and couplings an extra charge will be made above regular. For cutting lengths an extra charge will be made above random lengths. For galvanized or asphalted an extra charge will be made above black.

ARCH PIPES.

WATER CRATES.
Price per lb., \$

DRY PIPES.
Price per lb., \$

Price per lb., \$

2

CREE COMPANT, NE

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SAFE ENDS.

Schedule of Net Prices for Each Safe End.

Outside	Thickness			Length	in Inches.			
Diameter, Inches.	B'g'm W. G.	6 and Under.	ř	8	9	10	11	12
III. IIOO	,,,,	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
1 to 1 ³	(12	14	$16\frac{1}{4}$	$18\frac{1}{2}$	$\frac{20\frac{3}{4}}{200}$	23	$25\frac{1}{4}$	271
Inclusive.	$\begin{cases} 11 \\ 10 \end{cases}$	$15\frac{1}{4} \\ 16\frac{1}{2}$	$17\frac{1}{2}$ $18\frac{3}{4}$	$\frac{19_{4}^{3}}{21}$	$\frac{22}{23\frac{1}{4}}$	$24\frac{1}{4}$ $25\frac{1}{2}$	$rac{26rac{1}{2}}{27rac{3}{4}}$	$\frac{28\frac{5}{4}}{30}$
	(12	13	15	17	19	21	23	25
5	(10	14 15	$\frac{16}{17}$	18 19	20 21	22 23	$\frac{24}{25}$	$\frac{26}{27}$
	(12	14		18}	$20\frac{3}{7}$	28	$25\frac{1}{4}$	$27\frac{1}{2}$
$\frac{21}{4}$	111	$15\frac{1}{3}$	$16\frac{1}{4} \\ 17\frac{1}{2} \\ 18\frac{3}{4}$	$19\frac{3}{4}$	22	$24\frac{1}{4}$	$26\frac{1}{3}$	283
	(10	$16rac{\hat{1}}{2}$		21	$23\frac{1}{4}$	$25\frac{1}{2}$	$27\frac{3}{4}$	30
21	§ 11 } 10	$\begin{array}{c} 16 \\ 18 \end{array}$	$rac{18rac{1}{2}}{20rac{1}{2}}$	21 23	$23\frac{1}{2}$ $25\frac{1}{2}$	26 28	$\frac{28\frac{1}{2}}{30\frac{1}{2}}$	31 33
	(11	20	23	26	29	32	35	38
$2^{3}_{4} \& 3$	(10	23	26	29	32	35	38	41
3^{1}_{4}	§ 10	22	251	$28\frac{1}{2}$	$\frac{31_{4}^{3}}{35}$	$\frac{35}{38\frac{1}{4}}$	$38\frac{1}{4}$	413
04	(9	$25\frac{1}{4}$	28_{2}^{1}	$31\frac{3}{4}$ 32		39	$41\frac{1}{2}$ $42\frac{1}{2}$	$44\frac{3}{4}$ 46
$3\frac{1}{2}$	§ 10 } 9	$\frac{25}{28\frac{1}{2}}$	$\begin{array}{c} 28\frac{1}{2} \\ 32 \end{array}$	$\frac{32}{35\frac{1}{2}}$	35½ 39	$42\frac{1}{2}$	46	491
	(10	27	$\frac{30\frac{3}{4}}{34\frac{1}{2}}$	$34\frac{1}{2}$	$38\frac{1}{4}$	42	$45\frac{3}{4}$	$49\frac{1}{3}$
33	9	$30\frac{3}{4}$		38_{4}^{7}	42	$45\frac{3}{4}$	$49\frac{1}{2}$	$53\frac{1}{4}$
4	§ 9 } 8	2 9 33	33 37	37 41	41 45	$\frac{45}{49}$	49 53	53 57
		32	36½	41	$45\frac{1}{3}$	50	$54\frac{1}{5}$	59
$4\frac{1}{2}$	$\begin{cases} 9 \\ 8 \end{cases}$	$36\frac{1}{2}$	41	$45\frac{1}{2}$	50	$54\frac{1}{2}$	59°	$63\frac{1}{2}$
	(8	37	42	47	52	57	62	67
5	1 7	42	47	52	57	62	67	73
6	{ 7 6	$\frac{45}{51}$	51 57	57 63	63 6 9	$\begin{array}{c} 69 \\ 75 \end{array}$	75 81	81 87

THREADING STAY TUBES.

For Threading $2\frac{3}{4}$ inches and smaller tubes, for a length up to 3 inches, 12 cents per end. For Threading 3 to 5 inches, inclusive, tubes, for a length up to 3 inches, 20 cents $_{1}$ er end. Longer threads in same proportion.

STANDARD LAP-WELDED BOILER TUBES.

Outside Diameter, . Inches,	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	2 1
Price, per Foot,		.28	.27	$.2 ilde{2}$.20	.24	.28
Thickness, Inches,	.095	.095	.095	0.95	.095	.095	.109
Thickness nearest B. W. G.,		13	13	13	13	13	12
Nominal Weight, . per Foot,		1.15	1.40	1.66	1.91	2.16	2.75
Outside Diameter, . Inches,	$2\frac{3}{4}$	3	3 1	$3\frac{1}{2}$	$3\frac{3}{4}$	4	41/2
Price, per Foot,	\$0.34	,35	.40	.44	.50	.55	.62
Thickness, Inches,	.109	.109	.120	.120	.120	.134	.134
Thickness nearest B. W. G.,	12	.12	.11	.11.	.11	.10	.10
Nominal Weight, . per Foot,		3.33	3.96		4.60	5.47	6.17
Outside Diameter, . Inches,	5	6	7	8	9	10	12
Price, per Foot,	\$0.75	1.00	1 20			2.10	2.90
Thickness, Inches,	.148	.165	.165		.180		.229
Thickness nearest B. W. G.,	9	8	8	8	7	6	$4\frac{1}{2}$
Nominal Weight, . per Foot,	7.58	10.16	11 90	13.65	16.76	21.00	28 50

The above prices are for Tubes up to 22 feet long—for tubes in excess of that length, ten per cent. will be added to net of invoice.

EXTRA WIRE CAUCE BOILER TUBES.

For extra wire gauge boiler tubes, away from standard not exceeding four wire gauges, one cent for each inch in diameter of tube for each additional gauge will be charged and added to net of invoice.

Tubes more than four wire gauges heavier than standard will be charged by the pound the same as plain end stay tubes, arch pipes, dry pipes and water grates.

SWELLING ENDS OF BOILER TUBES UP TO 1-4 INCH LARGER IN DIAMETER. NET PRICES FOR ANY QUANTITY.

Per end, 2 in. $2\frac{1}{4} \text{ in.}$ $2\frac{1}{2} \text{ in.}$ $2\frac{3}{4} \text{ in.}$ 3 in. $3\frac{1}{4} \text{ in.}$ $3\frac{1}{2} \text{ in.}$ $3\frac{3}{4} \text{ in.}$ 4 in. Per end, 0.05 0.05 0.08

UPSETTING ENDS OF BOILER STAY TUBES.

External Diam. in inches.	13	1_4^3	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	2_{8}^{3}	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	3_{4}^{3}	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5
Price per end,	\$.52	.54.	58	.60	.66	.75	.80	.90	.96	1.05	1 15						٠.		
Price per end, $\frac{1}{4}$ in. thick.	.36	.40	.40	.45	.48	.51	.60	.69	.75	.78	.81	.90	.96	1.05	1.05	1.11	1.20	1.35	1.50
Price per end,	.34	.36	.36	.40	.44	.47	.56	.65	.70	.73	.76	.85	.90	.98	1.05	1.11	1.20	1.35	1.50

Upsetting Tubes over $\frac{5}{16}$ inch thick, same price as $\frac{5}{16}$ inch thick.

When the length of the Upset exceeds $2\frac{1}{2}$ inches, add 20 cents to the list for every $\frac{1}{2}$ inch of extra length.

"DIAMOND LOCOMOTIVE" BRAND BOILER TUBES.

SOLID DRAWN CHARCOAL HAMMERED IRON.

Outside Diameter, . Inches,	1	11	11	$1\frac{3}{4}$	3	2	$2\frac{1}{4}$
Standard Gauge for this Brand, .	13	$1\hat{3}$	$1 ilde{3}$	12		12	$1\overline{2}$
Price Per Foot,	\$0.38	.36	.34	.39	2	.32	.35
Outside Diameter, . Inches,	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	31	$3\frac{3}{4}$	4
Standard Gauge for this Brand, .	$1\overline{1}$	1Î	11	10	$1\overline{0}$	$1\overline{0}$	9
Price Per Foot,	\$0.38	.42	.45	.51	.58	.64	.72

"SALAMANDER" BRAND takes same list of prices, sizes, etc., as the "Diamond Locomotive" Brand.

PURE SHEET COPPER SEAMLESS BOILER TUBE FERRULES.

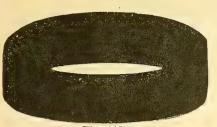




Fig. 1185.

THE BOXINE COMPANI, NEW TOKN.

Fig. 1186.

PRICE LIST PER HUNDRED OF PURE SHEET COPPER SEAMLESS BOILER TUBE FERRULES WITHOUT FLANCE.

Inside	Width.			Thicknes	s of Coppe	er		
Diameter.	With.	32	8 T	$\frac{1}{16}$	$\frac{5}{64}$	33	7 ⁷ 4	18
1 in.	167573	\$5.00 5.50	$7.00 \\ 7.50$	$9.00 \\ 9.50$	10.50 11.00	$12.00 \\ 12.50$	$13.00 \\ 13.50$	$14.00 \\ 14.50$
$1\frac{1}{4}$ in.	1 24 5 120	6.00 6.50	$\frac{8\ 00}{8.50}$	$10.00 \\ 10.50$	$11.50 \\ 12.00$	$13.00 \\ 13.50$	$14.00 \\ 14.50$	$15.00 \\ 15.50$
1½ in.	1 55 8	$\frac{6.50}{7.00}$	$8.50 \\ 9.00$	$10.50 \\ 11.00$	$\frac{12.00}{12.50}$	$13.50 \\ 14.00$	$14.50 \\ 15.00$	$15.50 \\ 16.00$
$1rac{3}{4}$ in.	1.5 2.20 20 3.4	7.00 7.50 8.00	$9.00 \\ 9.50 \\ 10.00$	$11.00 \\ 11.50 \\ 12.00$	12.50 13.00 13.50	$14.00 \\ 14.50 \\ 15.00$	15.00 15.50 16.00	16.00 16.50 17.00
$1\frac{7}{8}$ in.	1.0 1.11.00 tc-100	7.50 8.00 8.50 9.50 10.50	$\begin{array}{c} 9.50 \\ 10.00 \\ 10.50 \\ 11.50 \\ 12.50 \end{array}$	11.50 12.00 12.50 13.50 14.50	$13.00 \\ 13.50 \\ 14.00 \\ 15.00 \\ 16.00$	$14.50 \\ 15.00 \\ 15.50 \\ 16.50 \\ 17.50$	$15.50 \\ 16.00 \\ 16.50 \\ 17.50 \\ 18.50$	16.50 17.00 17.50 18.50 19.50
2 in.	1,00,00,000	8.00 8.50 9.00 10.00 11.00	10.00 10.50 11.00 12.00 13.00	12.00 12.50 13.00 14.00 15.00	13.50 14.00 14.50 15.50 16.50	$\begin{array}{c} 15.00 \\ 15.50 \\ 16.00 \\ 17.00 \\ 18.00 \end{array}$	16.00 16.50 17.00 18.00 19.00	17.00 17.50 18.00 19.00 20.00
$2\frac{1}{4}$ in.	다) 2013 411-103 무대	$10.50 \\ 11.00 \\ 12.00 \\ 13.00$	12.50 13.00 14.00 15.00	$14.50 \\ 15.00 \\ 16.00 \\ 17.00$	$16.00 \\ 16.50 \\ 17.50 \\ 18.50$	$17.50 \\ 18.00 \\ 19.00 \\ 20.00$	$18.50 \\ 19.00 \\ 20.00 \\ 21.00$	19.50 20.00 21.00 22.00
2½ in.	1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	$12.50 \\ 13.00 \\ 14.00 \\ 15.00$	$14.50 \\ 15.00 \\ 16.00 \\ 17.00$	$16.50 \\ 17.00 \\ 18.00 \\ 19.00$	18.00 18.50 19.50 20.50	$\begin{array}{c} 19.50 \\ 20.00 \\ 21.00 \\ 22.00 \end{array}$	20.50 21.00 22.00 23.00	21.50 22.00 23.00 24.00
3 in.	1 3 1 2 1	$16.00 \\ 17.00 \\ 18.00$	$18.00 \\ 19.00 \\ 20.00$	20.00 21.00 22.00	21.50 22.50 23.50	23.00 24.00 25.00	$24.00 \\ 25.00 \\ 26.00$	25.00 20.00 27.00
3 <u>1</u> in.	3 4 1 8	19.00 20.00 21.00	$21.00 \\ 22.00 \\ 23.00$	$23.00 \\ 24.00 \\ 25.00$	24.50 25.50 26.50	26.00 27.00 28.00	27.00 28.00 29.00	28.00 29.00 30.00
$3\frac{1}{2}$ in.	$1^{\frac{3}{\frac{4}{2}}}$	22.00 23.00 24.00	$24.00 \\ 25.00 \\ 26.00$	$26\ 00$ 27.00 28.00	27.50 28.50 29.50	29.00 30.00 31.00	30.00 31.00 32.00	31.00 32.00 33.00
4 in.	$1^{\frac{7}{8}}$ $1^{\frac{1}{4}}$	27.00 28.00 29.00	29.00 30.00 31.00	31.00 32.00 33.00	32.50 33.50 34.50	$34.00 \\ 35.00 \\ 36.00$	35,90 36,00 37,00	36.00 37.00 38.00

For price of Flanged Ferrules add \$2.00 per 1,000.

Price quoted per lb. on application.



Cut shows
Plain Ends

BURNE

Fig. 1187.

NO. 26. BIRMINGHAM WIRE CAUCE, THICKNESS, .018 INCH.

PRICE PER LINEAL FOOT, PLAIN OR CRIMPED END.

Diameter			Black,	Dipped in Coal Tar and Asphalt.	Galvanized.	Approximate Weight Per 100 Feet,
3 inch			\$0.17	\$0,20	\$0.25	90 lbs.
4 "			.21	.25	.33	115 ''
5 "			.25	.30	.40	140 "
6 "			.28	.34	.46	165 "

NO. 24. BIRMINCHAM WIRE CAUCE, THICKNESS, .022 INCH.

PRICE PER LINEAL FOOT,

With Plain or Crimped End, or with Sleeve for Slip-Joint.

Diam. in				_		-	Approximate Weight
Inches.				Black.	Asphalted.	Galvanized.	Per 100 Feet.
3				\$0.20	\$0.23	\$0.30	100 lbs.
4				,25	.29	.38	130 ''
5				.30	.35	.45	160 "
6				.33	.39	.50	185 ''
7				.37	.44	.60	210 ''
8 .				.42	.50	.65	240 "
9				.48	.57	.75	280 ''
10				.54	.64	.85	300 ''
11				.60	.71	.90	330 "
12				.68	.80	1.05	400 ''
	36.77	3.0	7 TAT	$\alpha + \alpha$	1 1 11 0 10	0 / 3.7	

No. 26 and No. 24 Gauge in lengths of 10 feet and less.

NO. 22. BIRMINGHAM WIRE CAUGE, THICKNESS, ,028 INCH.

PRICE PER LINEAL FOOT.

With Plain or Crimped End, or with Sleeve for Slip-Joint,

Diam.						,	1	Approximate Weight
Inches.					Black.	Asphalted.	Galvanized.	Per 100 Feet.
3					\$0.24	\$0.27	\$0.32	130 lbs.
4					.30	.34	.43	160 "
5					.37	.42	.53	200 "
6		a			.40	.46	.60	230 ''
7					.45	.52	.65	260 ''
8					. 53	.61	75	300 "
9					.60	.69 .	.90	340 "
10			·		.65	.75	1.00	380 "
11			Ì.		.70	.81	1.10	420
12	•				.82	. 94	1.25	490 "
13	•		-		.90	1.03	1.35	530 "
14	•	•	•	•	1,00	1.14	1.45	575 "
1 +	•		•	•	1,00	7,17	1.40	919

No. 22 Gauge in lengths of 20 feet and less.

The above approximate weights are for black pipe only, and intended as guides for estimating freight charges; galvanized or asphalted pipe, same gauge and diameter, is from 20 to 30 per cent, heavier.

In ordering pipe, the margin of safety should be at least one-half or two-thirds

In ordering pipe, the margin of safety should be at least one-half or two-thirds of the bursting pressure.

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Fig. 1188.

FEDURALI COMPANIE LEW SOURS

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Cut Shows

CRIMPED END.

NO. 20, BIRMINGHAM WIRE GAUGE. THICKNESS, .035 INCH.
Price per Lineal Foot. With Plain or Crimped End, or with Sleeve for Slip-Joint.

Diameter In Inches,	Black.	Asphalted.	Galvanized	Weight. Per 100 Feet.	Approximate Bursting Pres. in Lbs. Per Sq. Inch.
3	\$0.27	\$0.30	\$0.38	150 lbs.	900 lbs.
4	.35	.39	.48	200 "	700 "
5	.40	.45	.60	250 "	550 ''
6	.46	.52	.68	300 ''	450 ''
7	.51	.58	.75	325 ''	400 "
8	.58	.66	.85	360 ''	350 ''
9	.66	75	.97	410 "	325 "
10	.72	.82	1.05	500 "	275 ''
11	.78	.89	1.20	550 ''	250 ''
12	.90	1.02	1.35	600 "	225 ''
13	1.00	1.13	1.50	650 "	210 "
14	1.10	1.24	1 60	700 "	200 "
15	1.20	1.35	1.75	750 "	190 "
16	1.30	1.46	1.85	800 ''	160 "
18	1.40	1.58	2.05	900 "	150 ''
20	1.60	1.80	2.30	960 "	140 "
22	1.80	2.02	2.55	1040 "	125 "
24	1.95	2.19	2.85	1150 "	110 ''

The above approximate weights are for black pipe only, and intended as guides for estimating freight charges; galvanized or asphalted pipe, same gauge and d ameter, is from 20 to 30 per cent. heavier.

NO. 18, BIRMINCHAM WIRE CAUCE. THICKNESS, .049 INCH.
Price per Lineal Foot. With Plain or Crimped End, or with Sleeve for Slip-Joint.

Diameter In Inches.	Black.	Asphalted.	Galvanized.	Approximate Weight Per 100 Feet.	Approximate Bursting Pres. in Lbs. Per Sq. Inch.
3	\$0.34	\$0.37	\$0.46	185 lbs.	1300 lbs.
4	.42	.46	.58	245 ''	1000 "
5	.50	.55	.70	300 ''	800 "
6	.57	.63	.85	360 ''	700 "
7	.63	.70	.90	400 ''	600 "
8	.73	.81	1.05	460 "	500 "
9	.82	.91	1.18	525 ''	450 "
10	.90	1.00	1.30	575 "	400 "
11	.95	1.06	1.40	625 ''	360 ''
12	1.15	1.27	1.65	750 ''	330 ''
13	1.25	1.38	1.80	800 "	300 ''
14	1.35	1.49	1.95	.900 - 44	280 ''
15	1.50	1.65	2.10	950 ''	260 ''
16	1.60	4.76	2 25	1000 "	250 ''
18	1.75	1.93	2.55	1125 ''	220 ''
20	2 00	2.20	2.90	1250 "	200 ''
22	2.20	2.42	3 10	1350 "	180 ''
24	2.40	264	3 35	1466 ''	160 ''

The above approximate weights are for black pipe only, and intended as guides for estimating freight charges; galvanized or asphalted pipe, same gauge and diameter, is from 10 to 20 per cent, heaver. All the above in lengths of 25 feet and less, black or asphalted, and of 20 feet and less galvanized. Each length tested to service required.



Cut Shows

CRIMPED END PIPE WITH LUGS.

FOR WIRING LUGS, EXTRA PRICE.

Fig. 1189.

NO. 16, BIRMINCHAM WIRE CAUCE. THICKNESS, .065 INCH.

Price per Lineal Foot. With Plain or Crimped End, or with Sleeve for Slip-Joint.

Diameter In Inches.	Black.	Asphalted.	Galvanized.	Approximate Weight Per 100 Feet.	Approximate Bursting Pres. in Lbs. Per Sq. Inch.
4	\$0.50	\$0.54	\$0.70	320 lbs.	1250 lbs.
5	.60	.65	.85	415 "	1000 "
6	.70	.76	1.00	500 "	800 ''
7	.80	.87	1.10	550 ''	700 ''
8	.93	1.01	1.28	650 ''	600 "
9	1.08	1.17	1.47	750 ''	550 ''
10	1,15	1.25	1.55	800 "	500 ''
11	1.20	1.31	1.70	850 ''	450 ''
12	1.45	1.57	2.05	1025 "	400 ''
1 3	1.55	1.68	2.15	1100 ''	380 ''
14	1.70	1.84	2.40	1200 "	360 ''
15	1.85	2.00	2.60	1300 ''	330 ''
16	2.00	2.16	2.75	1375 "	300 ''
18	2.20	2.38	3.10	1550 "	280 ''
20	2.45	2.65	3,40	1675 "	250 ''
22	2.80	3.02	3.90	1825 "	230 "
24	3.00	3,24	4.30	2000 ''	210 "

NO. 14. BIRMINCHAM WIRE CAUCE. THICKNESS, .083 INCH.

Price per Lineal Foot. With Plain or Crimped End, or with Sleeve for Siip-Joint.

Diameter In Inches.	Black.	Asphalted.	Galvanized.	Approximate Weight Per 100 Feet.	Approximate Bursting Pres. in Lbs Per Sq. Inch.
6	\$0.89	\$0.95	\$1.15	610 lbs.	1100 lbs.
7	1.02	1.09	1.35	700 "	950 ''
8	1.15	1.23	1.50	825 ''	825 "
9	1.32	1.41	1.70	925 "	750 ''
10	1.40	1.50	1.80	1025 "	650 "
11	1.50	1.61	1,95	1125 "	600 "
12	1.80	1.92	2.35	1325 "	550 ''
13	1.90	2.03	2.50	1425 "	500 ''
14	2.10	2.24	2.70	1560 "	470 "
15	2.25	2.40	2.90	1680 ''	450 "
16	2.40	2.56	3.15	1790 "	400 "
18	2.75	2.93	3.60	2000 "	370 "
20	3.10	3.30	4.00	2200 "	325 "
22	3.40	3.62	4.55	2400 "	300 "
24	3.70	3.94	4.85	2620 "	275 "
ma .			1 1 1	2 4 . 2 2	

The above approximate weights are for black pipe only, and intended as guides for estimating freight charges; galvanized or asphalted pipe, same gauge and diameter, is from 10 to 20 per cent. heavier. All the above in lengths of 25 feet and less, black or asphalted, and of 20 feet and less galvanized. Each length tested to service required.

WROUGHT IRON LUCS FOR SLIP-JOINTS.

Black . . . 15 cents each. Galvanized . . 18 cents each.



Fig. 1190.

CUT SHOWS SLEEVE FOR SLIP JOINT.

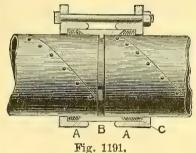
When sleeves are furnished, same are included in lineal measurement of pipe.

NO. 12, BIRMINGHAM WIRE CAUCE. THICKNESS, .109 INCH.

Price per Lineal Foot. With Plain or Crimped End, or with Sleeve for Slip-Joint.

Diameter in Inches.	Black.	Asphalted.	Galvanized,	Approximate Weight Per 100 Feet.	Approximate Bursting Pres. in Lbs. Per Sq. Inch.
6	\$1.25	\$1.31	\$1.90	800 lbs.	1330 lbs.
7	1.40	1.47	2.10	910 -66	1140 "
8	1.55	1.63	2.30	1040 "	1000 "
9	1.70	1.79	2.50	1180 "	880 "
10	1.90	2.00	2.75	1300 "	800 "
11	2.25	2,36	3.00	1425 "	725 "
12	2.50	2.63	3.25	1700 ''	660 "
13	2.70	2.83	3.50	1810 "	615 ''
14	2.90	3.04	3.75	2010 "	570 "
15	3.10	3.25	4,00	2165 "	530 "
16	3,25	3.41	4.25	2310 "	500 "
18	3.60	3.78	4.70	2570 "	440 "
20	4.00	4.20	5.25	2830 "	400
22	4.35	4.57	5,75	3090. "	365 "
24	4.70	4.94	6.25	3380 "	335 "

The above approximate weights are for black pipe only, and intended as guides for estimating freight charges; galvanized or asphalted pipe, same gauge and diameter, is from 10 to 20 per cent. heav er. In lengths of 25 feet and less, black or asphalted, and of 20 feet and less galvanized. Each length tested to service required.



THE BURNEY CONTRACTOR

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BOLTED JOINT. FOR SPIRAL RIVETED PIPE.

Roots' Bolted Joint is recommended for use where the pressure is excessive, as it admits of making a perfectly tight joint by means of the rubber packing "C," and without the annoyance connected with lead-caulking. By its use one or more lengths of pipe can be taken out and replaced without disturbing the balance of the line, and if necessary the whole line can be moved and the same pipe and joints be used again, an operation not possible with leaded joints.

Diameter.	Price.	Approximate Weight.	Diameter.	Price.	Approximate Weight	
3 inches.	\$1.15	8 Ibs.	12 inches.	\$6.00	50 lbs.	
4 "	1.40	11 "	13 "	6.50	55 "	
5 "	1.70	14 "	14 ''	7.25	60 ''	
6 "	2.10	17 "	15 "	8.00	65 ''	
7 66	2,50	20 "	16 "	8.50	70 "	
8 "	3.25	25 ''	18 "	10.00	80 "	
9 "	4.00	30 "	20 "	11.50	90 "	
10 66	4.75	36 "	22 "	12.50	105 ''	
11 "	5. 50	45 "	24 66	13.50	120 ''	

DOUBLE CALVANIZED SPIRAL RIVETED FLANCED PRESSURE PIPE.



Made of galvanized iron and regalvanized after formation, thereby making all seams and laps perfectly solid. Each length tested to 150 pounds Hydrostatic Pressure, suitable for

Fig. 1192.

EXHAUST STEAM, EXHAUST-STEAM HEATING, PUMP SUCTION, PUMP COLUMN, COMPRESSED AIR, REFRIGERATING PIPE, ETC.

Inside		I	rice Per Lineal			Bursting Pres.
Diam.	in	1	Foot, Including	Thickness	Approximate Weight,	in Lbs.
Inches	١.		Flanges.	B. W. G	Per Foot.	Per Square In
3			\$ 0.50	No. 20	$2\frac{1}{4}$ lbs.	900 lbs.
4			.70	66	3 "	700 ''
5			1.00	66	4 "	550 "
6			1,20	No. 18	5 " .	700 "
7			1.40	66	6 "	600 ''
8			1.70	66	7 "	500 "
9			2.00	66	8 "	450 "
10			2.60	No. 16	11 ''	500 ''
11			2.85	6 6	12 ''	450 ''
12			3.15	4 6	14 ''	400 ''
13			3.60	66	15 "	380 "
14	,		4.00	No. 14	20 "	470 ''
15			4 40	66	22 ''	450 ''
16			5.15	4.6	24 ''	400 "
18			6.40	6.6	29 "	370 ''
20			7.95	4.6	34 "	325 ''
22			10.00	No. 12	40 "	365 "
24			12.00	66	50 "	335 ''
			70	1 17 8000 1	3 3	

In lengths of 20 feet and less.

Pipe and Fittings gotten out to specifications and drawings when desired. Where lengths required are ALL 5 feet or less, they are charged as being 5 feet each.

CALVANIZED CAST AND WROUGHT IRON FITTINGS.

		FOR	SPIRAL	RIVETED	FLANC	ED PIPE.		
	side					Reducing		Reducing
	oter.		15° Elbows.	Return Bends.	Tees.	Tees.	Y-Branches.	
3 i	$_{ m nch}$	\$1.60	\$1.60	₹3.20	\$2.75	\$3.00	\$4.40	\$4.85
4	66	2.10	2.10	4 20	3.25	3.60	5 20	5.70
5	6.6	2.85	2.85	5. 70	4 40	4.85	7.00	7.70
6	66	4.10	4 10	8 20	5 70	6.30	9.10	10.00
7	6.4	5 10	5.10	10.20	7.30	8 05	11.70	12.90
8	66	6.70	6.70	13.40	9.80	10.80	15.70	17.25
9		9,00	9.00	18.00	$13 \ 80$	15.20	20.10	22.10
10	4.4	.10.00	10.00	20.00	17.60	19.35	28.10	31.00
11	4.4	13 00	13.00	26.00	20.00	22 00	32.00	35.20
12	4.6	15.80	15.80	31.60	22.50	24.75	36.00	39.60
13	4.4	19.15	19.15	38 30	25.00	27.50	40.00	44.00
14	66	22.30	22 30	44.60	30.50	33.50	48.80	53.70
15	4.4	26.00	26.00	52.00	37.00	40.70	59.20	65.10
16	4 6	30.00	30.00	60.00	44 00	48 40	70.40	77.45
18	66	34.00	34.00	68.00	50.00	55.00	80 00	88.00
20	66	38.50	38.50	77.00	5 6.00	61.60	89.60	98 60
22	66	$42\ 00$	42.00	84.00	60.00	66.00	96.00	105.60
24	66	45.00	45.00	90.00	70.00	77.00	112.00	123.20
				2/6				

CALVANIZED CAST AND WROUGHT IRON FITTINGS.

		JK SPIKAL	KIVELED	FLANGED	PIPE.		
Inside							Double
Diameter.	Crosses.	Reducers.	Flanges.	Disks.	Bolts.	Gaskets.	Elbows.
3 inch	\$4.15	\$	\$0.39	\$0.45	\$0.04	\$0.09	\$3.00
4 "	5.30	3.00	.52	.65	.04	.10	3.60
5 "	6.70	3.50	.65	.78	.04	.12	4.85
6 "	8.00	4.75	.78	1.17	$.04\frac{1}{3}$.16	6.30
7 "	11.00	5,50	1.04	1.56	$.04\frac{1}{3}$.18	8.05
8 "	14.25	6.50	1.17	1.82	$.04\frac{1}{5}$.23	10.80
9 "	18.80	8.00	1.56	2.34	$.04\frac{1}{2}$.31	15.20
10 "	24.50	10.25	1.82	2.47	$.04\frac{1}{3}$.40	19.35
11 "	26.50	12.00	1,95	3.25	$.04\frac{3}{1}$.45	22.00
12 "	30,00	13.00	2.08	3.90	$.04\frac{1}{2}$.50	24.75
13 "	33.50	14.60	2.34	4.55	.045	.56	$\frac{27.50}{27.50}$
14 "	38.00	16.50	2.60	5.46	.05	.68	33.50
15 "	45.00	18.40	3.12	5.98	.05	.75	40.70
16 ''	53.00	21.30	4.42	6.76	.05	.90	48.40
18 "	59.00	26.00	5.07	9.10	$.05\frac{1}{3}$	1.08	55.00
20 ''	67.00	29.40	5.59	11.70	$.05\frac{3}{5}$	1.25	
22	77.00	33.00	9.10	14.30	$.05\frac{1}{5}$	1.75	61.69
24 "	87.00	37.00	9.75	16.90			66.00
2 ±	01.00	01.00	0.10	10.90	$.05^{+}_{2}$	2.00	77.00

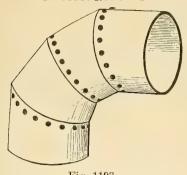
BLACK CAST AND WROUGHT IRON FITTINGS. FOR SPIRAL RIVETED FLANGED PIPE.

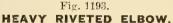
						_	
Inside	90°	45°	Return		Reducing		Reducing
Diameter.	Elbows.	Elbows.	Bends.	Tees.	Tees.	Y-Branches.	Y-Branches.
3 inch	\$ 1.25	\$1.25	*2.50	\$1.95	\$2.15	\$3.10	\$3.40
4 "	1.50	1.50	3.00	2.20	2.40	3.50	3 85
5 "	2.00	2.00	4.00	3.10	3.40	5.00	5.50
6 ''	2.90	2.90	5.80	3.90	4.30	6.25	6.90
7 "	3.50	3.50	7.00	5.00	5.50	8.00	8.80
8 4.	4.50	4.50	9.00	6.60	7.25	10.50	11.50
9	6.20	6.20	12.40	9.25	10.15	14.80	16.30
10 ''	6.80	6.80	13.60	11.50	12.65	18.40	20.25
11 ''	8.75	8.75	17.50	14.00	15.40	22.40	24.65
12 '	10.50	10.50	21.00	15.00	16.50	24.00	26.40
13 "	12.00	12.00	24.00	16.50	18.15	26.40	29.00
14 ''	13.50	13.50	27.00	18.60	20.50	29.75	32.70
15 ''	15.00	15.00	30.00	22.00	24.20	35.20	38.70
16 "	17.00	17.00	34.00	25.00	27.50	40.00	44.00
18 "	20.00	20.00	40.00	29.00	31.90	46.40	51.00
20 "	23.00	23.00	46.00	34.00	37.40	54.40	59.80
22 ''	26.00	26.00	52.00	39.00	43.00	62.40	68.60
24 ''	30.00	30.00	60.00	45.00	49.50	72.00	79.20
Tueide							Double

Inside							Double
Diameter.	Crosses.	Reducers.	Flanges.	Disks.	Bolts.	Gaskets.	Elbows.
3 inch	\$3.00	\$	\$0.24	\$0.28	$\$0.02\frac{1}{2}$	\$0.09	\$2.15
4	3.70	2.00	.32	.40	$.02\frac{1}{5}$.10	2.40
5 "	4.80	2.40	.40	.48	$.02^{\frac{7}{5}}$.12	3.40
6 "	5.70	3.25	.48	.72	.03~	.16	4.30
17 16	7.70	4.00	.64	.96	.03	.18	5.50
8 11	9.80	4.75	.72	1.12	.03	.23	7.25
9 "	13.00	5.50	.96	1.44	.03	.31	10.15
10 "	16.50	7.00	1.12	1.62	.03	.40	12.65
11 ''	19.00	8.00	1.20	2.00	.03	.45	15.40
12 ''	21.00	9.00	1.28	2.40	.03	.50	16.50
13 "	24.00	9.75	1.44	2.80	.03	.56	18.15
14 14	27.00	11 00	1.60	3.36	.031	.63	20.50
15 ''	31.00	12.25	1.92	3.68	.031	.75	24.20
16 "	34.50	14.20	2.72	4.16	$.03\frac{1}{5}$.90	27.50
18 "	39.00	17.40	3.12	5.60	.04	1.08	31.90
20 "	45.00	19.60	3,44	7.20	.04	1.25	37.40
22 0	51.00	22,00	5.60	8,80	.04	1.75	43.00
24 ''	58.00	25.00	6.00	10.40	.04	2.00	49.50
&±	00100		0.00	20010	* O #		20.00

Connection with wrought iron pipe readily made by means of threaded disks.

STRAIGHT SEAM RIVETED PIPE AND FITTINGS.





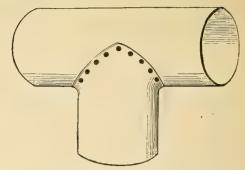


Fig. 1194. HEAVY RIVETED TEE.

Manufactured of

HEAVY CAUGES OF BLACK AND CALVANIZED SHEET IRON.

SUITABLE FOR

WATER, BLOWER, AIR, VENTILATOR PIPE, AND SMOKE STACKS, ETC. PIPE Rlack

	FIFE.				Ι,	mack.	Gaivanize(l.
No. 10 to 14, B. W. C	l., per lb.					8 cts.	11 ets.
No. 15 to 17, B. W. (1.,					9 "	12 ''
No. 18 to 20, B. W. (. 41	10 "	14 ''
No. 21 to 24, B. W. G					. :	11 "	16 "
ELBOW:	S, TEES,	CROSS	SES, ETC.		J	Black.	Galvanized
No. 10 to 14, B. W. G	., 8 inches	diameter	and larger, p	er lb.	. :	18 cts.	21 ets.
No. 15 to 17, B. W. G			"			19 ''	22 ''
No. 18 to 20, B. W. G			6.6	4.6	. 5	21 ''	25 "
No. 21 to 24, B. W. G	66	6.6	* 6	6.6	. 9	26 **	30 ''
No. 18 to 20, B. W. G	7 44	6.6	and smaller,	4.6	. 5	24 ''	28 "
No. 21 to 24, B. W. G		6.6	66	4.6	. 8	31 ''	35 "

Fittings coated with Coal Tar and Asphalt at 300 degrees temperature, extra.

No. 16, W. G., and Heavier, extra net . 1 cent lb. No. 17, W. G., and Lighter,

Pipe ½ cent for each inch of diameter per lineal foot.

Pipe and fittings gotten out to drawings, and specifications and estimates furnished.

CALVANIZED WROUGHT IRON STRAINERS FOR PUMP SUCTIONS.



Fitted with Flange, Socket and Nipple Joints, suitable for Welded, Cast Iron and Spiral Pressure Pipes.





Fig. 1197.

6.65

4.60

5.15

12

11

Fig. 1195. Fig. 1196. Diam. Suction Pipe, inches 15 21 Screw Nipple Joint, each \$0.60 .70.85 1.15 2.00 2.85 3.45 1.45Flange or Socket Joint, each 2.25 3.40 4.25 1.60 Diam. Suction Pipe, inches . 9 10 \$6.85 8.00 Screw Nipple Joint, each

8.00 9.75 11.45 14.90 20.60 23.00 26.30 28.60 40.00 Flange or Socket Joint, each . The area of the perforations in each strainer exceeds the area of the suction pipe, and gives full supply of water to the pump.

When ordering Flange give outside diameter of Flange.



CAST-IRON PIPE

FOR

Fig. 1198.

WATER AND CAS.

STANDARD WEIGHT FOR WATER.

Size Inches,	3	4	6	8	10	12	14	16	20	24	30
Thickness .	3/8	1/3	<u>1</u>	15	9	9.	3.	3.	15	1	1.1
Weight, per foot, lbs.,	15	22	33	45	60	75	117	125	200	250	350

Coated inside and out. Tested to 306 lbs. hydraulic pressure. Weights are for pipes to lay 12 feet.

STANDARD WEIGHT FOR CAS.

Size . Inches,	3	4	6	8	10	12	14	16	20	24
Thickness . "						$\frac{1}{2}$				
Weight, per foot, lbs.,	$12\frac{1}{2}$	17	30	40	50	70	84	100	150	184

Not coated. Tested to 250 lbs. hydraulic pressure. Weights are for pipe to lay 12 feet.

WEIGHT OF LEAD AND HEMP USED PER JOINT IN LAYING CAST-IRON PIPE.

Size Inches,	3	4	6	8	10	12	14	16	20	24	30
Lead, per joint . lbs.,	4	$5\frac{1}{2}$	8	11	15	18	22	24	28	32	38
Hemp " " ounces,	6	7	9	11	13	18	20	22	28	32	38

CAST-IRON FLANCED PIPE.

Made in all sizes from 4 to 30 inches. Prices quoted on application.

SPECIAL FOR CAST-IRON PIPE-REDUCERS.



Fig. 1199.





Fig. 1200.

Size, Inches. 3 x 2 4 x 3 6 x 4 6 x 3 8 x 6 8 x 4	Weight, Light. 28 lbs. 40 " 70 " 52 " 118 " 102 " 165 "	Weight, E eavy. 35 lbs. 48 115 103 170 145	Size, Inches. 12 x 10 12 x 8 12 x 6 12 x 4 14 x 12 14 x 10 14 x 8	Weight, Light. 220 lbs. 200 '' 170 '' 150 '' 410 '' 350 ''	Weight Heavy. 320 lbs. 300 " 290 " 250 " 430 " 430 "	Size, 1nches. 16 x 10 20 x 16 20 x 14 20 x 12 24 x 20 24 x 16 20 x 24 x 16	Weight, Light, 435 lbs. 520 · · · 575 · · · 530 · · · 745 · · ·	Weight, Heavy. 590 lbs. 1214 "655 "150 "1025 "805 "
10 x 8	165 ''	270 "	14 x 8	320	340 "	30×24		1585 "
10×6	135 ''	199	16×14	500 "	700 "	30×20		2010 "
10 x 4	128	180 ''	16 x 12	470	650	30×16		1365 "

INCREASERS.

Size, Weight.	Size. We	eight. Si e Inches	Weight.	Fize, Inches.	Weight.	Size, Inches.	Weight.
4 x 3 78 lbs.	8 x 4 168	3 lbs. 10 x 4	185 lbs.	10×8	204 lbs.	12×8	318 lbs.
6 x 4 108 "	8 x 6 165	5 '' 10 x 6	195 '	12 x 6	230 **	12×10	333

Y BRANCHES.

All sizes. 4 to 30 incles. Price on receipt of specifications.



Fig. 1201.

SLEE	VES,	PLUCS	A	ND	CA	PS	FOR	CA	ST-	IRON	Pi	PES	
Size .	. I	nches,	3	4	6	8	10	12	14	16	20	24	30
Sleeves	weight	lbs.,	30	42	76	110	146	208	300	360	557	710	963

Sl 35 Plugs 10 12 22 32 46 66 100 150 185 370 15 25 60 75 100 120 Caps

All weights approximate only.

SPECIALS FOR CAST-IRON PIPE.







Fig. 1203. Tee.



Fig. 1204. Eighth Bend.



Fig. 1205. Quarter Bend.

				CR	OSSES						
Size, inches	Weight.	Size, inch	es. We	ight.	Size, in	iches.	Weig	ht.	Size, inches.	We	eight.
3x3x3x3	98 lbs.	8x 8x 4		lbs.	12x12x	10x10	-665	lbs.	20x20x20x20	-179	0 lbs.
4x4x4x4	130 ''	10x10x10		16	12x12x	8 x 8	610	6.6	20x20x16x16	134	0 11
6x6x6x6	200 "	10x10x 8			12x12x	6 x 6	580		24x24x24x24	219	0
6x6x4x4	190 ''	10x10x 6			14x14x	14x14	840		24x24x20x20		0 44
8x8x8x8	370 ''	10x10x 4			16x16x	16x16	1135	44	30x30x30x30		
8x8x6x6	350 '	12x12x12			16x16x		1005		30x30x20x20		
000000	990	12112112	1110 11.								
TEES.											
Size, inches	. Weight.	Size, inch		eight.	Size, in		Weig		Size, inches.		ight.
3x3x3	80 lbs	8x 8x	4 21'	7 lbs.	12x12		525	lbs.	20x20x20	-176	0 lbs.
4x4x4	100 "	10x10x1	0 396	0 "	12x12	2x 8	510	4.4	20x20x16	150	0 "
6x6x6	214 "	10x10x		5 "	12x19	2x 6	500	6.6	24x24x24	201	0 4
6x6x4	160 ''	10x10x			12x19	2x 4	480	4.4	24x24x20	182	5 16
8x8x8	285 "	10x10x	-		16x1		1300	6.6	30x30x30	302	_
	237 "	12x12x1	_	-	16x1		1240	6.6	30x30x20	220	
8x8x6	201	INAINAI	-						0011001110	~~0	•
			ONE-EI		H BEN		15°).				
Size, inch	es.	. 3	4 6	8	10	12	14	1	3 = 20	24	30
	pprox., lb	s., 42	82 120	218	300	355	430	61	0 - 1220	1425	2450
115	T I		E-SIXT	CENT	'H REI	NDS (22 1-2	3 0)			
									3 00	0.4	0.0
Size, inch		. 3	4 6	8	10	12	14	1		24	30
Weight, a	pprox., lb	s., 33	54 100	175	250	270	400	61	.0 922	1145	2180
		OUAF	RTER B	END:	s, or	ELBO	WS	(90°).			
Ci iab	0.0	ີ 9	4 6	8	10	12	14	1		24	30
Size, inch		4.3		200		376	450	65		1400	_
Weight, a	approx., lbs	s., 48	60 112	200	265	910	700	00	0 1000	1400	2280

WINDOW GLASS.

Price per Box of 50 Square Feet.

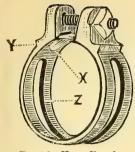
United Inches.			SIN	GLE.	DOUBLE.			
	SIZES.	AA	A	В	С	AA	A	В
25	6 x 8 to 10 x 15	\$17.50	\$16.25	\$15.50	\$15.00	\$23.50	\$22.00	\$21.00
34	11 x 14 \ 12 x 13 \ to 14 x 20	20.00	18.50	17.25	16.50	28.50	26.25	24.50
40	10 x 26 to 16 x 24	22.00	20.00	18.50	17.75	31.25	28.50	26.25
50	$\frac{18 \times 22}{20 \times 20}$ to 20 x 30	25.00	23.00	21.00		34.50	31.75	28.75
54	15 x 36 to 24 x 30	27.00	24.50	22.00		36.50	33.75	30.50
60	26 x 28 to 24 x 36 26 x 34)	30.00	26.75	24.00	0 *	41.00	37.25	33.75
70	28 x 32 to 30 x 40 30 x 30)	33.50	30.50	27.00		47.00	42.75	38.00
80	$\frac{32 \times 38}{34 \times 36}$ to 30×50	40.00	36.50	32.00		55.00	50.50	45.50
84	30 x 52 to 30 x 54	41.25	37.50	33.75		57.00	51.75	46.50
90	30×56 to 34×56					59.50	54.00	48.50
94	34 x 58 to 34 x 60					63.00	57.50	52.00
100	$36 \times 60 $ to 40×60					66.50	60 50	55.00

Sizes above 100 inches \$10.00 per box extra for every 5 inches.

An additional 10 per cent, will be charged for all glass more than 40 inches wide,

All sizes over 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

To find the number of lights in a box. divide the number of square inches (7300) in a box by the number of square inches in size of light wanted



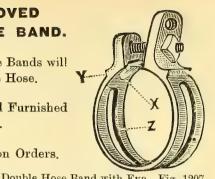
Double Hose Band. Fig. 1906

YERDON'S IMPROVED DOUBLE HOSE BAND.

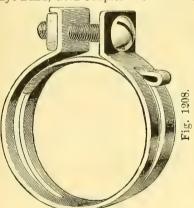
The Metal used in these Bands will not Rust or Rot the Hose.

Bolts with Square Head Furnished when ordered.

Special Sizes Made Upon Orders.



		rig. 1	L&U0.						Double Ho	se Band with Eye.	Fig. 1207.
W	here	Used.							Circumference When Closed. Inches.	Diameter When Closed, Inches,	Per Dozen.
1	incl	13 ply	Air Br	ake H	[ose	۰			4.79	1.52	\$2.50
1	6.6	4	6.6	6.6		۰			5.37	1.71	2.50
1	4	5	4 6	£ C					5.64	1.80	2.50
14	66	4		6.6					6.08	1.93	3.00
$1\frac{1}{4}$	- (4	5	4.4	6.6					6.32	2.01	3.00
$2\frac{1}{4}$	- 4	Tank	Hose						8.21	2.60	7.00
25	- 44	6.6	6.4						8.92	2.90	7.00
$-2rac{1}{2}$	- 66		Steam						9.27	2.97	8.50
13	6.6	Stean	1 Hose	Gibbs	з Сощ	pler			7.20	2.30	4.00
$1\frac{3}{8}$	6.5		4.6	Sewa	ll's C	ouple:	r		6.78	2.16	3.75
E	ye I	Band, S	sewall's	coup	oler H	lose			6.78	2.16	4.00
N	ew	Pattern	،، ۱				}		6.53	2.08	4.00
		Band, G		oupler					6.04	1.92	3.75



REDFIELD'S "SURE CRIP" HOSE CLAMPS.

Wrought Steel, finished in Vienna Bronze, Size and ply plainly stamped on every Clamp.

CLAMPS FOR COTTON MILL HOSE.

Size of Hose,	in	ch	es		$1\frac{1}{4}$	1 <u>1</u>	2
Per dozen			٠		\$2.00	\$2.50	\$3.50

Packed:

 $1\frac{1}{4}$ and $1\frac{1}{2}$ inch, 3 dozen, and 2 ir ch, 2 dozen in a box.

CLAMPS FOR STEAM HOSE.

Size Hose, inches			1/2	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Per dozen, 3 ply				\$1.50	\$2.50	\$3.00	\$3.50	
4 11			1.00	1.50	2.50 .	3.00	3.50	\$5.50
" " 5 "			1.00	1.50	2.50	3.00	3.50	5.50
6					2.50	3.00	3.50	

Packed, $\frac{1}{2}$ inch, 6 dozen; $\frac{3}{4}$, 1, $1\frac{1}{4}$ and $1\frac{1}{2}$, 3 dozen; and 2 inch, 2 dozen in a box.

CLAMPS FOR HYDRANT HOSE.

Size Hos	e, inches			• 8	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	24	$2\frac{1}{2}$	3
Per doze	en, 2 ply			. —		\$1.50				\$5.50		
16 66	3. 4 and	l 5 pl	V	. \$1.00	1.00	1.50	2.50	3.00	-4.00	-5.50	7.00	10.00
	Packed,	$\frac{1}{3}, \frac{3}{4}, \frac{3}{6}$	do do	zen; 1, $1\frac{1}{4}$, 11, 3	dozen;	$2, 2\frac{1}{4}, 3$	$2\frac{1}{2}$, 3 in	$^{ m ch}$ 2 $^{ m d}$	ozen in a	a box.	

CLAMPS FOR 1 1-4 INCH AIR BRAKE HOSE.

 $1\frac{1}{4}$ AB Bolts, $\frac{5}{16}$ x $1\frac{1}{2}$ per 100, \$8.50. $1\frac{1}{4}$ A Bolts, $\frac{1}{4}$ x $1\frac{1}{2}$, per 100, \$8.00. $1\frac{1}{4}$ W Bolts, $\frac{5}{16}$ x $1\frac{3}{4}$, per 100, \$9.00.

CLAMPS FOR I INCH AIR BRAKE AND SIGNAL HOSE.

1AB Bolts, $\frac{1}{4} \times 1\frac{1}{4}$, per 100, \$7.00. 1A Bolts, $\frac{1}{4} \times 1\frac{1}{4}$, per 100, \$7.00.

351



Fig. 1209.



AIR-BRAKE HOSE.

1 inch	internal	diameter,		Per foot	\$0.83
14 "	6.6	44		"	1.04
1 "	46	4.4	Е	nds cappe	d 1.00

66

1.25

Fig. 1210.

CORRUGATED TENDER HOSE.

1法 "



Fig. 1211.

This hose is corrugated in order to attain great flexibility, and has steel wire inserted between the plies to prevent collapsing or kinking.

It is made in 3 or 4 plies, and is guaranteed to

do excellent service.

Size. 3-Ply. 4-Ply. 11 inch \$0.40 \$0.50 6.6 1^{3}_{4} .45.55 66 2 .50 .60 $2\frac{1}{4}$ 56 .55 .65 25 66 .60 .70

AIR DRILL HOSE.



Fig. 1212.

Made from duck of the highest grade specially woven for this purpose, and capable of standing the most severe pressure and service. The rubber is of a grade that has proven its merit by many years of successful operation.



Fig. 1213.



Fig. 1214.

CANVAS WRAPPED.

	4-Ply.	5-Ply.	6-Ply.
Internal	Including	Including	Including
Diameter.	Canvas Cover.	Canvas Cover.	Canvas Cover
3 inch	\$0.67	\$0.83	\$1.00
1 "	.83	1.03	1.24
11 "	1.04	1.30	1.56
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1.25	1.56	1.87
2 "	1.66	2.07	2.49
21 " 3 "	2.08	2.60	3.12
3 " "		3.50	4.20

WIRE WOUND.

Will not unwind when Hose is cut. Wound with heavy round steel wire.

2			
Int Diam.	4-Ply.	5-Ply.	6-Ply.
$\frac{3}{4}$ inch	\$0.67	\$0.83	\$1.00
1 66	.83	1.03	1.24
1½ " 1½ " 2 "	1.04	1.30	1.56
11/2 "	1.25	1.56	1.87
2 "	1.66	2.07	2.49
2½ " 3 "	2.08	2.60	3.12
3" "		3.50	4 20

STEAM HOSE. MARLINE WOUND.

List price same as above. Additional charge for Marline Winding, 10 per cent.

WIRE WOUND HOSE.

PRICE FOR WIRING WATER HOSE. PRICE FOR WIRING STEAM AND AIR HOSE. Size. 3-Ply. 4-Ply. 5-Ply 6-Ply. Size. 3-Ply. 4-Ply. 5-Ply. 6-Ply 1 inch \$0.03 \$0.06 \$0.021 \$0.03\$0.04 inch \$0.04 \$0.05 \$0.07 .03 .031 $.04\frac{1}{3}$.05 .061 .08 .10 .05 .04 .05 $.06^{\circ}$ 1 66 .07 .063.08 .10 .12 1\frac{1}{4} 1\frac{1}{2} 66 .05 66 .06 $.07\frac{1}{3}$.09 114 $.08\frac{1}{5}$.10 .13 .15 66 13 .11 66 .123 ,15 .06 $.07\frac{1}{3}$.09 .10 .18 6 6 .08 2 66 .10 .12 .13 .15 .16 .20 .24 .10 $\frac{2\frac{1}{2}}{3}$ 46 .15 .18 21 C4 .12 .16 .20 .25 .30 66 .12 15 .18 .22 .20 28 .35 .40

RUBBER HOSE.

and the second		WAT	TER HO	SE LIS	T.	
	Internal Diam.		3 Ply. Per ft.		5-Ply. Per ft.	
	$\frac{1}{2}$ inch.	\$0.20	\$0.25	\$0.30	\$0.37	\$0.45
	3 66	.25	.30	.37	.46	.55
	1	.33	.40	.50	.62	.75
	11/4 "	.42	.50	.62	.77	.93
	11/2 11	.50	.60	.75	.93	1.12
	13 "	.58		.87	1.08	1.30
	3	.66	.80	1.00	1.25	1.50
Fig. 1215.	$2\frac{1}{4}$.75	.90	1.12	1.40	1.68
	$2\frac{1}{2}$.83	1.00	1.25	1.56	1.87
CONDUCTING HOSE, 2-PLY.	93 °11 ≈4	.92	1.10	1.37	1.71	2.05
This Hose is adapted to conduct	3 "	.99	1.20	1.50	1.87	2.25
water under moderate pressure. The	$3\frac{1}{2}$	1.16	1.40	1.75	2.18	2.62
larger sizes are mainly used for Tank	4 ''	1.32	1.60	2.00	2.50	3.00
Hose at Railway Stations.	5 "	1.65	2.00	2.50	3.13	3.75
	6 "	1.98	2.40	3.00	3.75	4 50
HYDRANT HOSE, 3-PLY.	PV 6.6	2.31	2.80	3.50	4.38	5.25
Intended for Hydrant, Garden and	8 "	2.64	3.20	4.00	5.00	6.00
Force Pump uses, where the pressure	9 44	2.97	3.60	4.50	5.63	6.75
does not exceed 75 lbs. per square inch.	10 66	2.22	4.00	5.00	6.25	7.50

ENGINE HOSE, 4-PLY.

We recommend this Hose, particularly the larger sizes, for all general purposes where a good, strong, reliable Hose is required. It is made to stand a pressure of from 100 to 200 lbs. per square inch.

HIGH PRESSURE HOSE. FIVE AND SIX-PLY.

Intended for use where the pressure is severe.

All the above kinds of hose that are in general use kept on hand in lengths of 25 and 50 feet, and these we do not cut. Lengths less than 50 feet made to order at three days' notice.

EXTRA HEAVY STEAM HOSE, BREWERS', OIL AND TANNERS' HOSE,

Int. Diam.	3-Ply. Per ft.	4-Ply. Per ft.	Int. Diam.	5-Ply. Per ft.	6-Ply. Per ft.	7-Ply. Per ft.	8-Ply. Per ft.
≟ inch,	\$0.43	\$0.51	ł inch.	\$0.63	\$0.76	\$0.89	\$1.02
3 46	.51	.67	3 **	.83	1.00	1.17	1.34
1 "	.67	.83	1 "	1.03	1.24	1.45	1.66
11/4 66	.85	1.04	14 "	1.30	1.56	1.82	2.(8
1½ "	1.02	1.25	13	1.56	1.87	2.18	2.50
13 **	1.18	1.45	134	1.81	2.17	2.53	2.90
2	1.34	1.66	2 "	2.07	2.49	2.90	3.32
21 "	1.66	2.08	$2\frac{1}{4}$	2.33	2.80	3.27	3.74
3	2.00	2.80	21 6	2.60	3.12	3.64	4 16
			3 "	3.50	4.20	4,90	5.60

Three-Ply, based on 20 lbs; Four-Ply, based on 40 lbs; Five-Ply, based on 60 lbs; Six-Ply, based on 80 lbs; Seven-Ply, based on 90 lbs; Eight-Ply, based on 100 lbs, for 1-inch hose,

COTTON FIRE HOSE.

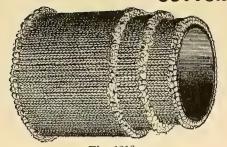


Fig. 1216. "TRIPLEX" BRAND.

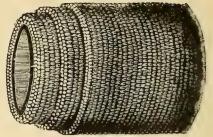


Fig. 1217. "TRINAL' BRAND.

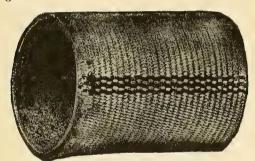
The two brands i lustrated, Figs. 1216 and 1217, are intended for exceptionally heavy pressure and for unusually severe duty.

The "Triplex" is a knit hose and is like the famous "Duplex" brand with an

additional jacket.

The "Trinal" is a woven hose, made as the cut shows, with three separate jackets.

Either will stand a pressure of 600 pounds to the square inch. 21 in internal diameter, \$1 00 per foot. 31 in internal diameter, \$1.50 per foot 1 25



"MUTUAL" UNDERWRIT-ERS' COTTONFIRE HOSE.

This brand of Rubber Lined Cotton Fire Hose is guaranteed to stand a pressure of 400 lbs, to the square inch, and is made to conform with the specifications of Mr. John R. Freeman, of the A-sociated Factory Mutual Insurance Companies, and has been approved and accepted as standard. 25 inch water way, per foot

Fig. 1218.

COTTON MILL HOSE. "EXTRA," "INSURANCE," "SEA ISLAND" AND "STAPLE."

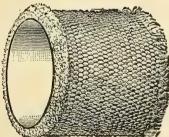


Fig. 1219. 11 inch diameter per foot.

1

Adapted for Hand Engines, Factories, Warehouses, Hotels, Steamboats, Public Institutions, Railroad Shops, etc., wherever a light, durable and reliable hose for fire protection is required.

The "Extra" brand is a full weight article, made in the most careful manner, and every section is mildew-proofed and guaranteed to stand a water pressure of 300 lbs. The "Insurance" brand is a closely woven fabric, mildew-proofed, and will sustain

a pressure of 300 lbs.

\$0.45	$-2\frac{1}{4}$ i:	nch diame	ter, per foot		-\$0.68
.50	$2\frac{1}{2}$	4.6	44		.70
.60	3	4.6	66		1.00



Fig. 1220.

COTTON CARDEN HOSE.

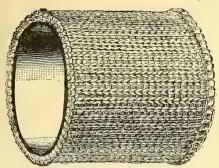
"Gulf Stream," "Sea Island," "Staple" and "Brunswick." Seamless and Rubber Lined.

½ inch diameter, 20 cents; ¾ inch, 25 cents; 1 inch, 35 cents per foot. In Lengths of 50 Feet.

All \frac{1}{2} and \frac{3}{4} in. Cotton Hose is coupled before shipment 20 cents per set extra, net, will be charged for couplings on all \(\frac{1}{2}\) and \(\frac{3}{4}\) hose ordered in 25 feet lengths.

One inch couplings, net, 30 cents per set, attached.

COTTON FIRE HOSE.



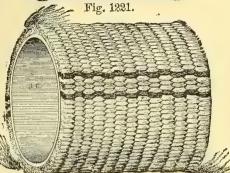


Fig. 1222.

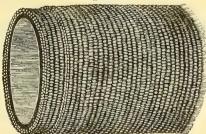


Fig. 1223.

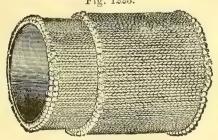


Fig. 1224.

"PALMA" BRAND.

This brand is a medium weight Knit Jacket Hose, and will safely stand a water pressure of 400 pounds to the square inch.

The materials used are of prime grade, and the Hose is suitable for steam fire engines, or other service where a strong Hose is desired. 11 inch internal diameter, 60 cents per foot.

21

90

"RELIABLE" BRAND.

We make for Fire Departments or wherever a high pressure hose is required, several grades suitable for this class of service.

This is an extra heavy, single body, Knit Hose. It will stand a water pressure of 400 lbs. to the square inch.

	-						
$1\frac{1}{2}$	inch	internal	diameter,		50 ce	nts per fo	oot.
2	6.6	6.6	6.6	٠	60	5.6	
$2\frac{1}{2}$	66	6.6	6.6		75	6.6	

"SIX LINE" BRAND.

For Fire Departments or other high pressure service.

This is a very heavy and strong single body circular Woven Hose, capable of standing a water pressure of 400 lbs. to the square inch.

$1\frac{1}{5}$	inch	internal	diameter,		50 cer	its per	foot.
2	6.6	4.6	44		60	4.6	
$2\frac{1}{2}$	6	. 6	4.6	٠	75	66	

"AI" BRAND.

This brand is a medium weight Woven Jacket Hose, and as the name implies, is composed of two separate and distinct bodies of cotton, the outer one being pulled over the inner one. The Hose thus jacketed is rubber lined in the best manner, and is guaranteed to stand a water pressure of 400 lbs. to the square inch. It is woven with a perfect tension, and will not contract under pressure.

2 inch internal diameter, 65 cents per foot.

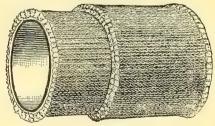


Fig. 1225.

"DUPLEX" BRAND.

A full weight Knit Jacket Hose, rubber lined in the best manner, and will stand a water pressure of 500 lbs. to the square inch. It is guaranteed first-class in all respects, and is adapted to the use of steam fire engines and other high pressure service.

$\frac{1}{2}$	inch	internal	diameter,	٠	\$0.60	per foc
2 91			"		.90	6.
$\frac{21}{3}$	6.6	44	6.6		1.10	64
33	4.6	6.6	44		1.30	46

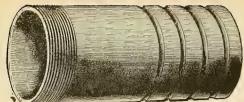


Fig. 1226. Each, Each,

\$0.60 \$0.75

Galv.

1.25

1.57

1.88

Plain.

1.00

1.25

1.50

	$\frac{1\frac{1}{4}}{1\frac{1}{2}}$ "	-	44	.35 3.40		.44
Length.	Each, Plain.	Each, Galv.	Internal Diam.	Length.	Each, Plain.	Each, Galv.
10 in.	\$2.25	\$2.80	7 in.	10 in.	\$4.50	\$5.62
10	2.75	3.44	8 "	12 ''	6.00	7.50
10 ''	3.00	3.75	10 ''	12 ''	10.00	12.50

IRON NIPPLES. SCORED IRON NIPPLES FOR STEAM AND SUCTION HOSE. Each.

Plain.

\$0.25

.30

15 "

Each.

\$0.30

Galvanized

15.00 18.75

5 6 For prices of Cast-Iron Flanges for Suctions, see page 376.

Internal

Diam.

4 in.

6.6

41 66

10 "



Internal

Diam.

2 in.

31 11

21

3 66 Length.

8 in.

66

8

10 6.6

10

Fig. 1227.

"AMERICAN CHIEF" FIRE HOSE.

12 "

Length.

5 in. 6 11

Internal

3 in.

4.00

5.00

Diameter.

A new brand of Fire Hose. The Hose weighs only fifty pounds to the section coupled, is as soft as a glove and will reel closer than cotton hose. As a matter of fact, a section of fifty feet, with the couplings on, can be coiled within a circle of twenty-four inches. A section of this hose will stand a pressure of 450 pounds to the square inch, and at working pressure the elongation would not exceed six inches.

2½ inch, 4-ply, with 5-ply capped ends, \$1.00 per foot, coupled . 2 inch, 4-ply, with 5 ply capped ends, per foot, coupled . .80

"DIAMOND" FIRE HOSE, FOR STEAM FIRE ENCINES.

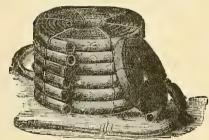


Fig. 1.25.

In ordering Hose with couplings, a sample coupling should be sent us, that we may get the correct thread.

The Rubber used in the manufacture of this brand of Hose is the very best grade of FINE PARA.

The Duck used is made from selec ed LONG FIBRE COTTON.

We guarantee the 4-ply to stand 400 pounds to the square inch.

	4-Ply with	F 701	C 707		
		5-Ply with	6-Ply with		
	5-Ply Capped	6-Ply Capped	7-Ply Cappe		
	Ends.	Ends.	Ends.		
	400 lbs Water	500 lbs. Water	600 lbs. Wate		
	Pressure.	Pressure.	Pressure.		
	Per Foot.	Per Foot.	Per Foot.		
1} incl:	\$0.75	\$0.94	\$1.13		
3 '	1.00	1.25	1.50		
21 11	1.12	1.40	1.68		
$2\frac{1}{4}$ " $2\frac{1}{2}$ "	1.25	1.56	1.88		

"MUTUAL" UNDERWRITERS LINEN FIRE HOSE.

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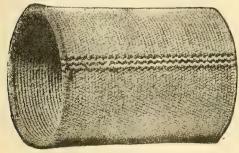


Fig. 1229.

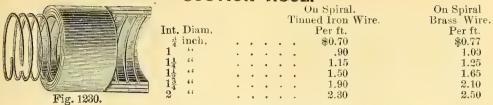
To conform with the requirements of the Associated Factory Mutual Insurance Companies, for their fire hose protection.

Guaranteed to stand a water pressure of at least 400 lbs. per square inch, and to be practically water-tight.

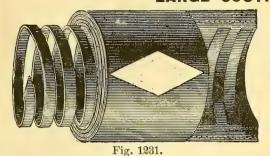
UNLINED AND SEAMLESS.

1	inch	diameter,	per foot			\$0.27
14	4.6		- 46			.3)
11	66	66	6.6	•		.33
$\frac{1\frac{1}{2}}{2}$	4.6	6.6	66	•	•	
rear	6.6	4.6	46	•	•	.42
$\frac{2\frac{1}{4}}{2\frac{1}{5}}$				•		.46
25	66	6.6	66			.50

SUCTION HOSE.



LARCE HOSE.



Used for Wrecking and Mining Purposes, etc. On Flat Galvanized Iron Spiral,

Int.	Per	Int.	Per
Diam.	ft.	Diam.	ft.
$\frac{2\frac{1}{2}}{3}$ inch,	\$3.10	$6\frac{1}{5}$ inch	\$10.50
	4.00	7	12.00
3½ '' 4 ''	4.90	7½ " 8 "	13.50
	5.80	8 "	15.00
$\frac{4\frac{1}{2}}{5}$	6.70	9 "	17.50
	7.60	10 "	20.00
$\frac{5\frac{1}{2}}{6}$ "	8.50	12 "	25.00
6 "	9.50		

Per

ft.

19.50 22.50

27.50

\$16.50

"SMOOTH BORE" SUCTION HOSE.



Fig. 1232.

	2 inch,	
	21	
16	3 "	
	31 **	
	2 inch, 2½ · · · 3 · · · 3½ · · · 4 · · ·	
	41 "	
	-2	

Per Int. Diam. ft. \$2.60 3.50 4.505.50 6.50 7 50

Per Int. Int. Diam. Diam. ft. 5 inch. \$8.50 8 inch, 9.509 .. 10.50 10 12.0012 6.6 7 13.50 71 66 15.00

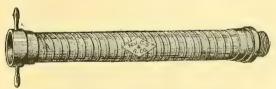
EXTRA HEAVY SUCTIONS

For Wrecking and Dredging Purposes, Sand Pumps, Etc.

SMOOTH BORE, CORRUGATED SURFACE.

Int. Diam.	Per ft.	Int. Diam.	Per ft.	Int. Diam.	Per. ft.
10 inch,	\$22.50	15 inch,	\$35.0 0	18 inch,	\$42.50
12 "	27.50	16 ''	37.50		
1.4 66	99.50	117 16	40.00		

STEEL-CLAD SUCTIONS.



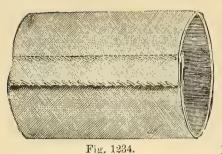
For Fire Engines, Mining Service, etc. The Hose is wound with flat steel wire, which protects the surface from abrasion.

	Fig.	1233.					
Int. Diam.	Per ft.	Int. Diam.	Per ft.	Int. Diam.	Per ft.	Int. Diam	Per ft.
2 inch.	\$2.60	4 inch,	\$6.50	6 inch,	\$10.50	8 inch,	\$16.50
21 "	3.50	41 44	7.50	$6\frac{1}{2}$ "	12.00	9 "	19.50
3. "	4.50	5 "	8.50	7 "	13.50	10 ''	22.50
31 "	5.50	5 } ''	9.50	71/2 "	15.00	12	27.50

HARD RUBBER SUCTION HOSE.

Int. Diam.	Per ft. \$0.65	Int. Diam. $1\frac{1}{3}$ inch, $1\frac{3}{3}$ "	Per ft. \$1.13 1.31	Int. Diam. $2\frac{1}{4}$ inch, $2\frac{1}{3}$ α	Per ft. \$1.69 1.88
1 66	.93	$\overset{1}{\overset{1}{2}}$	1.50	w.7	

SEWED MINING AND TANK HOSE.



For conducting large volumes of water long distances over unequal ground, for draining purposes and hydraulie mining. Made from the BEST QUALITY COTTON DUCK, TRIPLE STITCHED.

WITHOUT RUBBER LINING.

		WITHOUT	R C	DDEK	LIMING.			
4	inch	Tank Hose			35	cents	per f	foo
5	66	4.6			40		- "	
-6	66	4.6			50	66	66	
7		6.6			55	6.6	66	
8	66	6.6			60	6.6	6+	
9	4.6	6.6			70	66	6.6	
10	66	6.6			80	66	6.	

HYDRAULIC MINING SEWED HOSE.

Made from Extra Heavy Cotton Duck.

6 i	nch Hydrai	ulic Minin / Hose				60 d	ents	per foot
7	66	4.6				70	6.6	- 66
8	4.6	. 66						66
9	66	66				90		66
10	66	64						66

"CONTINENTAL" LINEN HOSE

The "Continental" is a reliable hose for factory fire protection, and will stand a water pressure of 400 pounds to the square inch.

UNLINED AND SEAMLESS.

1	in.,	15	cts.	per ft.	21	$_{ m in}$, 26	cts.	per ft.
17	6.6	18	66	6.6	21	6.6	28	66	66
11	64	20	66	66	3	66	40	66	66
	66			6.6					

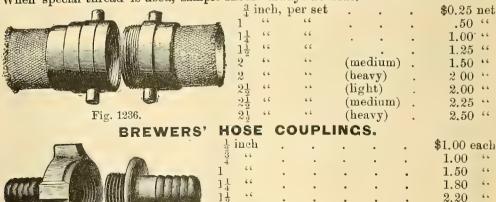
2.80

4.00

6.50

Fig. 1235. PATENT EXPANDED RING SCREW COUPLINGS.

This style of coupling gives an unobstructed water way, thus overcoming the friction incident to the old style shank couplings. They cost only a trifle more than the old style couplings, when expense of clamps or bands are considered, and present a much neater appearance. Beside this, it makes far better work in coupling all kinds of fabric hose, and no other style of coupling should be used. When special thread is used, sample should always be sent.

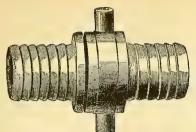


2

23

3

Fig. 1237.



HOSE COUPLINGS.

FOR RUBBER HOSE.

Size Per doz.					
Size Per doz.					

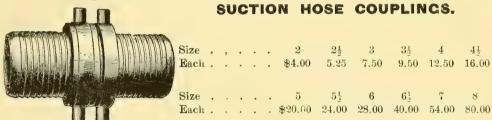
Fig. 1238.



STEAM HOSE COUPLINGS.

Size $\dots \frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{6}$ 2 $2\frac{1}{2}$ Per doz. . . \$16.00 18.00 25.00 33.00 42.00 75.00

Fig. 1239.



SUCTION HOSE COUPLINGS.

			2 \$4.00					
Size			5	5^{1}_{7}	6	$6\frac{1}{2}$	7	8

Fig. 1240.



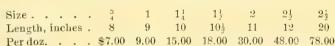
HOSE NIPPLES.

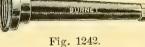
Size. $1\frac{1}{4}$ 1 } $2\frac{1}{5}$ $3 \quad 3\frac{1}{5}$.30 .45 .75 .85 1.20 2.40 3.40 4.20 6.50 Each . . . \$0.30

REVOLVING LAWN SPRINKLERS.

. . . Each, \$5.00 No. 1. Four Arm, Nickel-plated . . . No. 2. Eight " Fig. 1241.

HOSE PIPES-PLAIN.





HOSE PIPES-SCREW TIP.

Size . . . 3 11 $1\frac{1}{5}$ Length, ins. 8 10 11 12 15 15 Per doz. . \$8.00 10.00 18.00 25.00 39.00 75.00

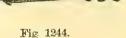


Fig. 1243.

HOSE PIPES.

COCK ON LARGE END.

Size \cdot \cdot \cdot $\frac{3}{4}$ \cdot $\frac{3}{4}$ \cdot 1 \cdot $1\frac{1}{4}$ \cdot $1\frac{1}{2}$ Length, ins. 6 8 10 11 12 Per doz. . \$11.00 13.00 20.00 36.00 55.00 110.00



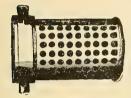
THE "CEM" HOSE PIPES.

Throws either solid stream or spray.



Fig. 1245.								Fig. 1246.						
Size,	3 inch,	per dozen	۰		•			•	С	•		•	\$10.00	
66	1 "	- "				۰		•	•	•	•	•	12.00	

SUCTION STRAINERS.



Brass, size $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 5 6 Each . . \$1.30 1.50 2.00 4.00 5.00 9.00 16.00 20.00 30.00 40.00 Iron Plain, each . \$0.30 .40 .50 .75 1.00 1.50 2.00 3.00 3.75 4.75 €.50 Iron Galv'd,

. .40 .50 .75 1.00 1.50 2.00 3.00 4.50 6.00 7.00 10.00

Fig. 1247.

FLEXIBLE RUBBER PLAY PIPES.



Fig. 1248.

each

Fig. 1248. Rubber Mounted, complete, plain Butts, each, \$10.00

M

BURNET

COMPANY,

Z

8



Fig. 1249.

Fig. 1249. Rubber Mounted, complete, Metal Handle, ea., \$13.50.



Fig. 1250.

Fig. 1250. Rubber Mounted, complete, Leather Handles, each. \$15,00.

2½-inch Rubber Play Pipe Tubes, each, \$5.00.

UNDERWRITERS' PLAY PIPE, WOUND AND PAINTED, WITH HANDLES.



				F)	ig. 128	51.				
Size, inches .							2	21	$2\frac{1}{2}$	$2\frac{1}{2}$
Length, inches							20	$2\overline{4}$	$3 ilde{0}$	36
Wound and Painted	1,	each					\$9.00	11.00	12.00	15.00
Plain Brass, each			0				7.50	9.50	11.00	13.50
Wound and Painted	i,	without	Har	idles,	each		6.50	8.50	10.00	12.50

"SWINGING HOSE RACK."

Japanned Red.

F	OR	"UN	LINED	LINEN'	" но	SE.
No.			Hose.	Full Capa		Price
0,	for 1	$\frac{1}{2}$ or 2	inch,	50 f	eet,	\$5.00
00,	- 6 2		6.6	50	4.6	-5.00
1,	" 1	1 or 2	4.6	100	4.6	6.00
2,	2	<u>Į</u>	4.4	100	64	6.00
3,	" 1	3 or 2	4.4	150	4.6	7.00
4,	2	$\frac{1}{2}$	6.6	150	6.6	7.00

"RUBBER LINED LINEN" OR 'MILL" HOSE.

No.	Size of Hose.	Full Capacity.	Price.
3,	for $1\frac{1}{2}$ or 2 inch,	50 feet,	\$7.00
4,		50 ''	7.00
5,	" $1\frac{7}{2}$ or 2 "	100 "	7.50
6,	$11 \cdot 2\frac{1}{2}$	100 "	8.00

Nos. 5 and 6 will carry Heavy Hose of almost any make in 50 feet lengths. We can supply any of the above sizes bronzed in gold, white with gold stripe, nickel or brass plated, or solid polished brass.

"THE SWINCING HOSE RACK." WITH PIPE CLAMPS.

Fig. 1252.

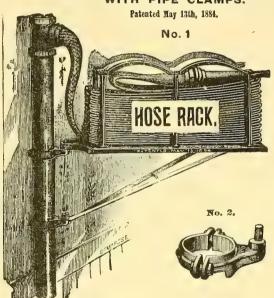


Fig. 1253. Price List "Rack" with "Pipe Clamps." All Racks Japanned "Red" unless otherw se ordered.

					Nos.	Nos.	Nos.		
Style of Finis	sh.				00 & 0.	1 & 2.	3 & 4.	No. 5.	No. 6.
Japanned "Red"		0 +		Each,	\$5.40	\$6.40	\$7.40	\$7.90	\$8.40
"Gold"				i s	6.00	7.25	8.25	9.25	9.25
" White	with Gold	Stripe		6.6	6.00	7.25	8.25	9.25	9.25
Bronzed in Gold				6.6	5.40	6.40	7.40	7.90	8.40
Nickel-Plated, Po	lished			6.6	9.00	10.50	12.00	14.00	14.50
Brass "				b 4	9.00	10.50	12.00	14.00	14.50
Solid Brass,				6.6	15.00	18.00	21.00	26.00	26.00
37 3371		7	D 1	11 1/1	. (2) (1	I 12 I	I	-ima aima	of mino

Notice.—When you order "Racks" with 'Pipe Clamps" be sure and give size of pipe they are to fit. If not standard size pipe you must give Outside diameter.

Also to avoid mistakes and to get the proper "Rack" when you order give Size, Kind and Length of Hose. For capacity see top of this page.

THE "PERFECT" AUTOMATIC HOSE REEL.

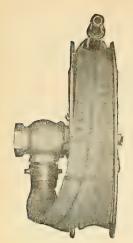


Fig. 1254.

Size, 1 inch

2

23

14 "

Patented July 6th, 1897.

This Reel is unquestionably the best device that has ever been made for holding hose. It is stronger, more ornamental, and occupies less space than any of the other devices. The Reel being attached to the stem of the valve causes the unwinding of the hose to open the valve and turn on the water supply gradually, thus filling the hose as rapidly as it is unreeled, and preventing it from becoming kinked or twisted. With high water pressure and favorable conditions water has been secured through one hundred feet of Unlined Linen Hose on one of these Reels in thirteen seconds, and with very low water pressure and under very unfavorable conditions in twenty-five seconds. Water supply can also be shut off quicker with one of these Reels than with any other. This is a very important feature, as it limits water damage

to a minimum in case of fire. We make them in two styles, known respectively as the "Perpendicular" and the "Forty-five Degree."

As these reels do not attach to wall, the expense of "putting up" is saved. In our modern buildings this is quite an item.

Valves for these Reels should be placed at height of $6\frac{1}{2}$ feet from the floor.

BRASS NICK	EL-PL	ATED	VALVE,	WITH	ALUMINU	M FINE	SH REE	L OR	RACK.
Capacity, Nu	mber of	feet	25	50	75	100	125	150	200
Size, 1 inch				11.0	0 - 11.50	12.50	13.00	13.50	14.00
" 1½ "			11.50	12.00	0 - 13.00	14.00	14.50	15.25	15.75
2			14.00	14.5	0 14.75	15.50	16.25	16.50	17.00
$aabaa 2\frac{1}{2}$			16.50	17.00	0 17.50	18.25	19.00	19.50	20.00
BRASS NICKE	EL-PLA	TED V	ALVE, W	ITH REE	EL OR RAC	K NICK	EL-PLA	TED O	NIRON
Size, 1 inch			\$14.00	14.50	0 15.00	15.50	18.00	18 50	21.50
" 11 "			16.00			17.25	19.75	20.00	
2"			17 50	18.29	5 18.75	19.25	21.50	24.00	
21			20.75	21.2	5 21.50	22.00	24.25	24.50	
POLISHED	BRAS	S VA	LVE, WI	TH PO	LISHED B	RASS	REEL (OR RA	CK.
Size, 1 inch			\$15.00	15.78	5 18.50	19.25	23.75	26.75	30.50
" 11 "			16.00	17.50	0 20.25	21.00	25.50	26.75	30.50
· · 2 · · ·			17.75	19.00	22.00	22.50	27.00	28.50	
$^{\prime\prime}$ $2rac{1}{2}$ $^{\prime\prime}$			21.00	22.00	0 24.75	25.25	29.75	31.25	35.00
BRASS	NICKE	L-PL	ATED VA	LVE, V	VITH BRA	SS RE	EL OR	RACK	

Price of 45° Reel is \$1.00 each, net, in addition to above.

17 00

18.75

20.00

23.00

19.50

21.00

21.75

24.50

20.75

22.50

24.25

27.00

24.75

26.50

 $28 \ 25$

31.00

26.50

28.00

30.00

32 00

29.00

30.75

32.00

36.00

\$15.50

17.25

19.00

21.75

Above prices do not include Hose.

MODERN TWO-WHEELED HOSE CARTS.

FINE COACH FINISH AND BRASS TRIMMINGS.

FRAMES OF WROUGHT IRON AND STEEL.

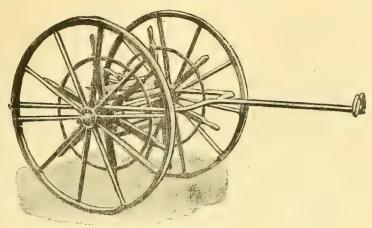


Fig. 1255

NO. 00. TUBULAR STEEL FRAME HOSE CART.

Weight, 80 lbs.; wheels, 40 inches in diameter; width outside of hubs, 40 inches; capacity. 150 feet 2\frac{1}{2}-inch rubber hose, 250 feet rubber-lined cotton hose. It is constructed upon an entirely original principle, with wrought frame and wood reel. Width can be narrower if desired. Price, \$25.

No. 0 Cart (not illustrated) has all iron reel and continuous frame, otherwise same as No. 00. \$40.

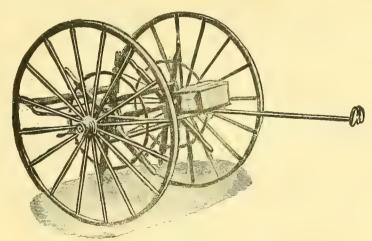


Fig. 1256.

NO. 11-2. TUBULAR STEEL FRAME HOSE CART.

Illustration represents one of the most popular styles of hose cart. Wrought frame; slatted reel; tool box in front and friction roller behind; also hooks for rope. Designed especially for lumber yards, planing mills, factories, etc. Owing to its lightness and ease of running, it is also used by fire companies. Capacity, 500 feet $2\frac{1}{2}$ -inch unlined linen hose; 400 feet $2\frac{1}{2}$ -inch rubber-lined hose; 200 feet $2\frac{1}{2}$ -inch rubber hose. Wheels, 4 feet diameter; weight, 125 lbs.; width, 48 inches. Can be furnished any width narrower than named without extra cost. Price, \$50.

No. $1\frac{3}{4}$. Same style cart built with 4 ft. 4 in. wheels and for 500 feet $2\frac{1}{2}$ -inch mill hose. Price, \$75. Weight, 145 lbs.

No. 1 Cart (not illustrated) same as No. $1\frac{1}{2}$, except with all iron reel. \$60.

MODERN TWO-WHEEL HOSE CARTS.

FINE COACH FINISH AND BRASS TRIMMINGS. FRAMES OF WROUGHT

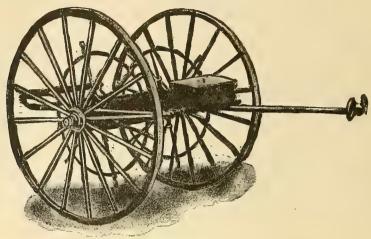


Fig. 1257.

NO, 2. TUBULAR STEEL FRAME HOSE CART.

The illustration represents a larger size than No. $1\frac{1}{2}$ hose cart. Wrought frame; slatted reel; tool box in front and friction roller behind; also hooks for rope. Owing to its lightness and ease of running, it is also used by fire companies. Weight, 310 lbs.; capacity, 600 feet $2\frac{1}{2}$ -inch rubber-lined hose; 800 feet $2\frac{1}{2}$ -inch unlined linen hose; 400 feet $2\frac{1}{2}$ -inch rubber hose; width, 48 inches; wheels, 5 feet diameter; tires, $1\frac{5}{2}$. Hub caps finished brass. Price, \$100.

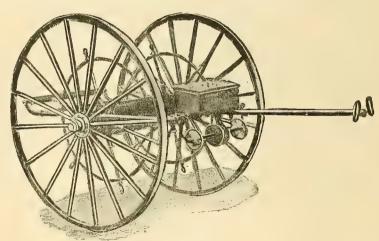


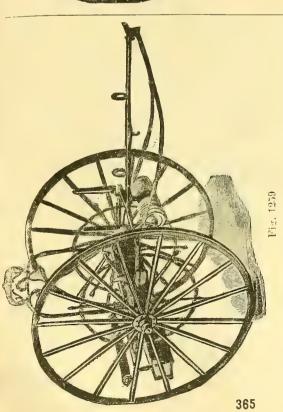
Fig. 1258.

NO 21-2, TUBULAR STEEL FRAME HOSE CART,

This cart is similar in construction to the No. 2, with 5-foot wheels, $1\frac{5}{8}$ tires, 1 inch frame, $1\frac{1}{2}$ inch axles, and with a brass head rope reel and 60 feet manila rope. Capacity is the same as No. 2 cart. Price, \$115. Weight, 380 lbs.

No. $2\frac{1}{2}$ F. D. (not illustrated) is arranged for fire department use, with axe and crowbar on frames and place on tongue for one or two hose pipes Price, \$125. Weight, 400 lbs.

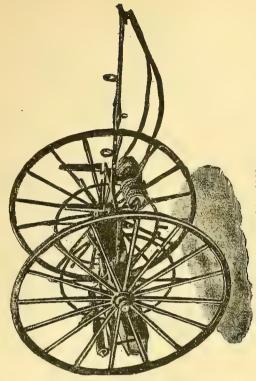
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NO. 4. WROUGHT FRAME AND ARCH HOSE CART.

Wrought frame and arch hose cart, hand reching, open r el heads, with arch, with cast brass name plate of fire company if desired, and bell metal chime jingle bell, wheels 5½ feet diam., ''A'" quality, iron bulls, hub caps brass, nickel-plated if desired; tires 1½ inches wide; reel capacity 600 feet 2½-inch rubber-lined hose, 800 feet 2½ inch unlined linen hose, 400 feet 2½-inch rubber-lined sees the forum; balanced wrought iron frame, name of fire company on scroll; hard wood tool box in rear part with automatic lock; pipe holders, one set of straps on tongue; friction roller behind; axle of best material; 1½ in. dameter; wrought from tongue with hold back bundles, crab and prop-leg; rope re l wi.h brass heads and painted stopping, 60 feet fine manifar rope, letter, with buckles; one pick-blead a fin spring socket; one crowbar in spring socket; one crowbar in spring socket; painting, rich ornamentation on wheels, frame and reel heads to suit purchaser. Price, \$200.

Exter Large No. 4, with 6 foot wheels and 2-inch tires and capacity for 1,000 feet $2\frac{1}{2}$ -inch hose, \$235.



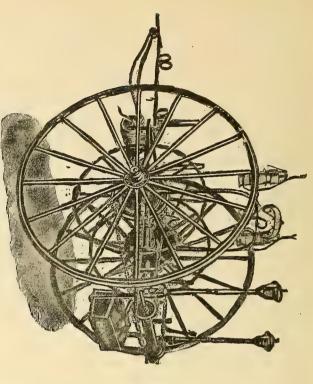
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lig. 1260.

NO. 3. SOLID FORCED FRAME HOSE CART.

Solid forged frame hose cart, hand recling, open reel heads, weight 450 lbs.; wheels 5 feet diam... A. quality; iron hubs, hub caps brass, nickelplated if desired; tires 1½-inches wide, reel capacity 900 feet 1½-inch rubberlined hose, 800 feet 2½-inch rubber-lined hose, 800 feet 2½-inch rubber hose, 800 feet 2½-inch rubber hose, 800 feet 2½-inch rubber hose, 800 feet 2½-inch rubber hose, satted wood hose reel drum; balanced wrought iron frame, name of fire company on box, hard wood tool box supported behind, with automatic lock; pipe holders one set of straps on tongue friction roller behind; axle of best, material and proportionate strength: wrought iron tongue with hold-back handles, crab and prop-leg: rope reel with nickel-plated heads and painted stop-paw; 60 feet fine manila rope, leathered, with buckles; one pick-head ave in spring socket; one crowbar in spring socket; painted English vermillion with rich ormamentation. Cones as shown for trumpets, if desired; or one pair holders for lanterns can be put on in place af the trumpet holders, if ordered. Price, \$140.

No. 3 Expr. A larger cart of same style, with 6-ft. wheels, and capacity for 1,000 feet of 2\frac{2}{2}-inch hose. Price, \\$185.



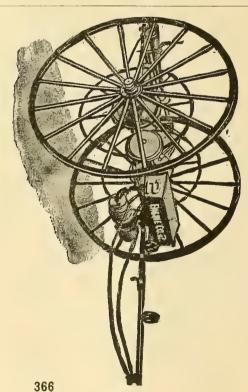
COMPANY

Fig. 1261.

NO. 51-2. FANCY ARCH CHAIN-WINDING HOSE CART.

Wrought frame fancy arch hose cart, chain-winding, open reel heads: with arch; with bell; with lantern holders; wheels, 5! feet diameter, "A" quality; iron hubs, hub caps brass, nickel-plated if desired; tires, 1; inches wide; reel capacity 800 feet 2}-inch unlined linen hose, 600 feet 2}-inch rubber-lined hose, 400 feet 2}-inch rubber-lined hose, 400 feet 2}-inch rubber hose; reel operated by winch handles; iron reel drum, balanced wrought-iron frame, with extension to tighten chain, name of fire company on scroll (furnished only when so ordere?); hard wood tool box in rear, with automatic lock; two wood cones for trumpet holders, as shown in cut, and two straps on tongue for play pipes, friction roller with brass nuts; axle of best material and proportionate strength; wrought iron tongue with hold-back handles, crab and propeleg; rope reel with brass heads and painted stop-pawl; 60 feet fine manila rope, leathered, with buckles; one pick-head axe in spring socket; one crow-bar in spring socket; also one pair brass or nickel-plated swinging torches mounted on oak handles carried on rear; cart painted in rich carmine and tastefully ornamented. Price, \$275 Price with one pair brass lanterns \$2.5. Weight, 525 lbs.

Ixtra No. 54 Cart built for 1,000 feet of 24-inch hose and with 6-foot wheels, \$325.



ig. 1262.

NO. 5. CHAIN-WINDING SERVICE HOSE CART.

Wrought frame fancy hose cart, chain winding, open reel heads; wheels 5½ feet diameter, "A" quality; iron hubs, hub cap brass (nickel-plated if desired); tires 1½ inches wide, reel capacity, 800 feet 2½-inch unlined linen hose, 600 feet 2½-inch rubber-lined hose, 400 feet 2½-inch rubber hose; reel operated by winch handles; iron reel drum; balanced wrought iron frame with extension to tighten chain; hardwood tool box in front, with automatic lock; 10-inch brass gong, struck by revolution of wheel; two straps on tongue for play pipes; friction roller with brass nuts; axle of best material and proportionate strength; wrought iron tongue with hold-back handles, crab and prop-leg; rope reel with brass heads and painted stop-pawl; 600 feet fine manila rope, leathered, with buckles; one pick-head axe in spring socket; one crowbar in spring socket; cart painted in rich carmine and tastefully ornamented with name of fire company on tool box. \$255. Price with lantern holders on end of tool box and one pair of brass lanterns, \$240. Weight, 495 lbs.

Extra No. 5 Cart, built for 1,000 feet of 22-inch hose and with 6-foot wheels. Price, \$275.

MALLEABLE IRON, CAS, WATER AND STEAM FITTINGS.

Adopted by the Manufacturers' Association.

CLASS A-PRICE, 30 CENTS PER POUND.

Elbows, $\frac{1}{8}$, $\frac{1}{4}$ x $\frac{1}{8}$, $\frac{3}{8}$ x $\frac{1}{8}$. Tees, $\frac{1}{8}$, $\frac{1}{8}$ x $\frac{1}{4}$, $\frac{1}{4}$ x $\frac{1}{8}$, $\frac{3}{8}$ x $\frac{1}{8}$.

R. and L. Couplings, $\frac{1}{8}$ in. Couplings, R. H., $\frac{1}{8}$ in.

Ells, R. and L. $\frac{1}{4}$ and $\frac{3}{8}$ in. R. and L. Return Bends, 3 and $\frac{1}{2}$ in.

CLASS B-PRICE, 20 CENTS PER POUND.

Elbows, $\frac{3}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ x, $\frac{1}{4}$, $\frac{1}{9}$ x, $\frac{1}{4}$ in. Tees, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{4}$ x, $\frac{3}{8}$, $\frac{3}{8}$ x, $\frac{1}{4}$ x, $\frac{3}{4}$, $\frac{3}{8}$ x, $\frac{1}{4}$, $\frac{3}{8}$ x, $\frac{1}{4}$ x, $\frac{3}{8}$, $\frac{3}{8}$ x, $\frac{1}{4}$ x, $\frac{3}{8}$ x, $\frac{1}{8}$ x, $\frac{3}{8}$ x, $\frac{3}{8}$ x, $\frac{1}{8}$ x, $\frac{3}{8}$ x Elbows, Side Outlets, 1 in.

and smaller. Tees, Side Outlets, 1 in. and

smaller. Street Ells, $\frac{1}{4}$ and $\frac{3}{8}$ in. Crosses, $\frac{1}{4}$, $\frac{8}{8}$, $\frac{1}{2}$ in. Reducing Crosses, 1 in. and

smaller.

Drop Ells and Tees, 1 in. and smaller. Caps, $\frac{1}{4}$ and $\frac{3}{8}$ in. Lock Nuts. $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ in. Reducing Couplings, $\frac{3}{8}$ x $\frac{1}{4}$ to 3 x 3, inclusive. Extension Pieces, \(\frac{3}{8}\) and \(\frac{1}{2}\) in.

R. and L. Couplings, $\frac{1}{4}$ and $\frac{3}{8}$ in.

R. Hand Couplings, \frac{1}{4} and \frac{3}{8} in.

R. and L Elbows, & in. Waste Nuts, 3 in. and smar-Chandelier Hooks, all sizes. Return Bends, $\frac{3}{8}$ and $\frac{1}{2}$ in. Return Bends, R. and L., $\frac{3}{4}$, 1 in. Wall Plates, all sizes.

 45° Ells, $\frac{1}{2}$ in. and smaller. Y's, $\frac{1}{2}$, $\frac{3}{4}$ in.

CLASS C-PRICE, 16 CENTS PER POUND.

Elbows, $\frac{1}{2}$ and $\frac{1}{2} \times \frac{3}{8}$. Elbows, R. and L., $\frac{3}{4}$, 1 in. Tees, & and & in., reducing. Elbows, Side Outlets, 3 in. and larger. Tees, Side Outlets, 3 in. and

larger. Street Ells, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{3}{4} \times \frac{1}{2}$, $1 \times \frac{3}{4}$ Orosses, 1 and $\frac{3}{4}$ in., straight. Drop Ells, $\frac{3}{4}$ in. and larger. Drop Tees, 3 in. and larger. Caps, $\frac{1}{2}$, $\frac{3}{4}$ and 1 in. Lock Nuts. $\frac{3}{4}$, 1, $1\frac{1}{4}$ in. Reducing Couplings, $\frac{3}{4}x\frac{1}{2}$ to 1 in., inclusive.

R. and L. Couplings, $\frac{1}{2}$ and $\frac{3}{4}$ in.

R. H. Couplings. $\frac{1}{2}$, $\frac{3}{4}$ in. Extension Pieces, $\frac{3}{4}$ in. and larger. Waste Nuts, 1 in. and larger. Return Bends, $\frac{3}{4}$, 1 in. 45° Ells, $\frac{3}{4}$ to 2 in. inclusive. Y's, 1 in. and larger. Return Bends, R. and L., 11

in. and larger.

CLASS D-PRICE, 13 CENTS PER POUND.

Elbows and Tees, 3 and 1 in. Crosses, 14 in an Clarger. Street Ells, 1 in. and larger. Caps, 11 in. and larger.

in.

Lock Nuts, $1\frac{1}{2}$ in. and larger. Reducing Couplings, $1\frac{1}{4}$ in. and larger. R. H. Couplings, 1 and $1\frac{1}{4}$ in.

Return Bends, 14 in. and larger. R. and L. Couplings, 1 in. and larger. 45° Elbows, 21 in. and larger.

Such Fittings as have smaller outlets than \(\frac{3}{4} \) inch will be classed "C."

CLASS E-PRICE, II CENTS PER POUND.

Elbows and Tees, 14 in. and larger.

Right Hand Couplings, 11, 2 in.

Such Fittings in this class that have outlets smaller than 1 inch to be classed "D."

The run of Tees (Bullheads) gives the size for the purpose of classification, and the outlet being larger does not change it. Return Bends, reduced, Return Bends, spread, Elbows tapped on pitch, 15 per cent. added. PRICE LIST.

CLASS В Price, per pound, Black . 30 cents. 20 cents. 16 cents. 13 cents. 11 cents. Price, " Galvanized 40 cents. 23 cents. 20 cents. 18 cents. 27 cents.

STANDARD LIST OF

CALVANIZED MALLEABLE FITTINGS.

ELBOWS $\frac{3}{9}$, $\frac{1}{2}$, $\frac{1}{2}$ $\frac{3}{8}$, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{1}{2}$, 1, 1 $\frac{1}{4}$, 1 $\frac{1}{4}$, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$, 1 $\frac{1}{2}$, 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$, 4. **STREET ELLS** $-\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2.

		I E E O.		
Si	e. Size.	Size.	Size.	Size.
3 X	$x = \frac{3}{2}$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	$1\frac{1}{2} \times 1\frac{1}{2} \times 1$	$2 \times 2 \times 1\frac{1}{2}$
3 X 3 X 3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	$2 \times 1\frac{1}{2} \times 2$
1 X 1	$1 \times \frac{1}{2}$	$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	2 x 2 x 2
1 X	$X \stackrel{3}{\leftarrow} X \stackrel{1}{\leftarrow} X $	$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{2}$	$1\frac{1}{2} \times 1\frac{1}{2} \times 2$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$
3 X	$\frac{1}{x} = \frac{1}{5}$ 1 x 1 x $\frac{3}{4}$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{2}$	$2 \times 1^{\frac{1}{2}} \times 1^{\frac{1}{2}}$	3 x 3 x 3
3 X	$\frac{3}{4}$ 1 x 1 x 1	$1\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$
34 X 4 X 4 X 4 X 4 X	$\frac{3}{8}$ 1 x 1 x $1\frac{1}{4}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		4 x 4 x 4
3 X 3	$x \frac{1}{2}$ $l \frac{1}{4} \times 1 \times 1$	$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$	2 x 2 x 1	
3 X	$1\frac{1}{4} \times 1 \times 1\frac{1}{4}$	$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}$	$2 \times 2 \times 1\frac{1}{4}$	

CROSSES -Straight Sizes, 1. 4, 1, 11, 11 and 2. COUPLINGS-Right Hand, 1, 8, 1, 4, 1, 11, 11 and 2. LOCKNUTS—§, ‡, ‡, 1, 1½, 1½ and 2. CAPS—§, ‡, ‡, 1, 1½, 1½ and 2. Right and Left, $\frac{1}{4}$, $\frac{3}{6}$, $\frac{1}{4}$, $\frac{5}{4}$, 1, 1, 1, and 2. Reducing, $\frac{1}{4}x\frac{1}{4}$, $1x\frac{1}{4}$, $1\frac{1}{4}x1$, $1\frac{1}{2}x1\frac{1}{4}$, $2x1\frac{1}{4}$.

FEMALE DROP ELBOWS AND TEES 1.1.

An extra charge of 10 cents per lb, will be added to price of Galvanized Fittings not enumerated in Standard List.

MALLEABLE IRON FITTINGS, BEADED.

PIECE LIST.



ELBOW. Fig. 1263.



45° ELBOW. Fig. 1264.



тее. Fig. 1265.



скозя. Fig. 1266.

4
08.5
2.40
3.15
2



STREET ELBOW. Fig. 1267.



Y BRANCH. Fig. 1268.



reducer. ig. 1269.



R. & L. COUPLING. Fig. 1270.



CAP. Fig. 1271.

Size, inches.			$\frac{1}{4}$	3 8	$\frac{1}{2}$	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Street Elbows,	Each		.05	.05	.07	.12	.15	.23	.32	.55				
Y Branches	4.6				.25	.40	.60	.80	1.00	1.70	2.00	3.00	3.50	4.00
Reducers	6.6		.03	.04	.05	.07	.09	.11	.14	.25	.50	.70	1.10	1.40
R and L Couplin	ngs "	6	.03	.04	.05	.07	.10	.15	.22	.30				
Caps	6.6		.02	.03	.04	.05	.08	.09	.14	.19	.43	.70	1.20	1.55

MALLEABLE RETURN BENDS.



CLOSE. Fig. 1272.



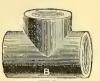
OPEN. Fig. 1273.

Size, in							1/2	3. 4	1	$1\frac{1}{4}$	11	2
Close	۰	•		٥		Each	.10	.13	.22	.30	.45	.65
Open	•	۰	•	c)	•	k 6	.11	.25	.33	.40	.50	.90

MALLEABLE IRON FITTINGS, PLAIN. PIECE LIST.



ELBOW. Fig. 1274.



TEE. Fig. 1275.



cross. Fig. 1276.



REDUCER. Fig. 1277

1 1g. 1~	(X)		rig.	1210.				rig.	Fig. 1277.				
Size		Inches,	<u>1</u> H	$\frac{1}{4}$	38	1/2	3 4	1	$1\frac{1}{4}$	11	2	$2\frac{1}{2}$	3
Elbows, .		. Each,	\$0.04	.04	.05	.06	.08	.13	.17	.24	.35	.70	1.05
Tees, .			.04	.05	.06	.07	.10	.15	.19	.28	.45	.85	1.25
Crosses,			.05	.05	.07	.10	.12	.19	.23	.31	.60	1.10	1.75
Reducers,	٠			.03	.04	.05	.07	.09	.11	.14	.25	.50	.70







		-												
JOCKNUT.		COU	PLING,			BUSH	HING.		FAC	FACED BUSHING.				
Fig. 1278.		F g	. 1279.			Fig.	1280.			Fig. 1281.				
Size,	Inches,	1	38	1/2	3.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3			
Four-way Tees, .	Each,		\$0.12	.14	.20	.35	.50	.80						
Side Outlet Elbows,	6.4		.08	.10	.18	.30	.45	.60						
Locknuts,	4.4	.01	.02	.03	.04 .	.05	.07	.08	.10	.21	.28			
Couplin s	٤,	.03	.04	.05	.07	.10	:15	.18	.26					
Bushings,	4.6		.04	.04	.05	.06	.07	.09	.14	.21	.30			
Bushings, Faced, .	6.6		.08	.09	.11	.13	.17	.22	.32	.48	.70			
Cans	6.6	.02	.03	.04	.05	.08	.09	.14	.19	.43	.70			

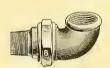
MALLEABLE UNIONS.



Fig. 1282.

Size, . Plain, . Galvanized,	Inches, Each,	\$0.18 .27	.18 .27	.20 $.30$.22 $.33$.27 $.40$	1 .33 .50	$1\frac{1}{4}$.46.70
Size, .	Inches		1 1	2	$2\frac{1}{2}$	3	3‡	4
Plain, .	Each,		\$0.58	.75	1.55	2.10	3.65	4.35
Galvanized	4.6		.90	1.15	2.35	3.15	5.50	6.50

MALLEABLE IRON UNION ELLS.



MALE AND FEMALE. Fig. 1283.



FEMALE. Fig. 1284.

Size, . Inches,	$\frac{1}{2}$	34	1	14	1 ½	2	$2\frac{1}{2}$
Union Ells, Male and Female, Each,	\$9.48	.62	.72	1.05	1.20	1.80	3.30
" Female, "	.42	.54	.63	.90	1.05	1.55	2.85
Gal. Union Ells, Male and Female,	.72	.93	1.08	1.60	1.80	2.70	4.95
Female,	.63	.81	.95	1.35	1.58	2.35	4.30

MALLEABLE IRON UNION TEES.



MALE AND FEMALE Fig. 1285.



FEMALE, Fig. 1286.

Size, Inches,	$\frac{1}{2}$	34	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Union Tees, Male and Female, Each,	\$0.52	.65	.80	1.10	1.30	1.95	3.70
" Female,	.45	.57	.70	.95	1.15	1.70	3.20
Galvanized Union Tees, Male and Female, "	.78	1.00	1.20	1.65	1.95	2.95	5.55
" " Female, . "	.68	.86	1.05	1.45	1.75	2.55	4.80

ROUGH BRASS FITTINGS.-Iron Pipe Sizes. MALLEABLE IRON PATTERN.











TEE. STREET ELBOW. CROSS. ELBOW. Fig. 1288. Fig. 1289. Fig. 1290. Fig. 1287. 21 1 $1\frac{1}{4}$ 2 $3\frac{1}{2}$ 11 3 Size. Inches. Each, \$0.12 .17 .21 .28 .35 .50 .851.10 1.50 3.50 4.50 7.00 10.00 Elbows. . 66 .22 .26 .35 .45 1.10 1.40 1.90 Reducing Elbows, 4.40 5.65 8.75 12.50 :30 .25 .40 .50 .75 1.25 1.65 2.25 5.25 6.75 45° Elbows . .15 .20 .30 .40 .50 .75 1.00 1.30 1.754.00 5.50 9.00 13.00 Tees. .25 .38 .50 .63 .95 1.25 1.65 2.20 5.00 6.90 11.25 16.25 Reducing Tees, . . .20 .30 .40 .50 .60.80 1.50 2.00 3.50 5.00 7.00 10.00 14.50 Crosses. .75 1.00 1.90 2.50 4.40 6.25 8.75 12.50 18.00 66 .38 .50 .65 Reducing Crosses, .35 .55 1.00 1.80 2.50 3.25 Street Elbows,

B	
В	











REDUCING PLUG. LOCKNUT. BUSHING. COUPLING. COUPLING Fig. 1292. Fig. 1293. Fig. 1294. Fig. 1295. Fig. 1291. Fig. 1296. 2 21 Inches, 1 14 13 3 33 4 .90 1.85 Reducing Couplings, Each, . . \$0.16 .22 .32 .45 .65 1.12 3.00 4.50 .15 .15 .20 .25.35 .60 .80 1.10 2.00 3.00 Caps .45 .09 .10 .12 .15 .20 .28 .50 .90 1 25 2.00 Plugs, .40 3.00 .30 66 .10 .10 .12 .15 .20 Locknuts, .45 .70 .95 1.50 2 75 .10 .12 .14 .21 .38 .50 .67 1.50 Bushings. 1.00 2.50 .60 Couplings .10 .14 .16 .25 .37 .50 .90 1.35 2.40 3.50 66 Couplings, R. and L, .17 .20 .30.45 .60 .75 1.12 1.75 . . 6.6 .12 .15 .20 .25.30 Close Nipples, .40 .60 .90 1.25 2.50 3,50 Long Nipples, 66 .15 .20 .30 .35 .45 .60 .90 1.25 1.60 3.00 4.50

RETURN BENDS.

CLOS		D 4 7		DM
CLUS) E.	PAI	1 5	re re .

				CLO	SE PAI	IERR.				
S'ze,				Inches,	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price,		0	0	Each,	\$0.60	.80	1.15	1.75	2.50	3.50

EXTRA HEAVY ROUGH BRASS FITTINGS-IRON PIPE SIZES.

CAST-IRON PATTERN.



ELBOW. Fig. 1297.



ELBOW REDUCING. Fig. 1298.



ELBOW R. & L. Fig. 1299.



45° ELBOW. Fig. 1300.

Size, Inches .				38	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	1 <u>1</u>	2	$2\frac{1}{2}$	3
Elbows		Each	۰	.28	.36	.70	1.00	1.50	2.00	3.00	5.50	8.50
" Reducing	·	4.6		.32	.42	.80	1.15	1.72	2.30	3.45	6.30	9.75
" R. and L.		4.6		.32	.42	.80	1.15	1.72	2.30	3.45	6.30	9.75
45° Elbows .		4.6			.36	.70	1.00	1.50	2.00	3.00	5.50	8.50



TEE. Fig. 1301.



oross. Fig. 1302.



RETURN BEND, CLOSE. Fig. 1303.



RETURN BEND, OPEN. Fig. 1304.

Size, Inches		3. 8	1/2	3-4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Tees	Each	.40	.65	1.00	1.35	2.00	3.00	4.50	7.50	11.00
" Reducing .	6.	.46	.75	1.15	1.55	2.30	3.45	5.20	8.60	12.65
Crosses				1.30	1.80	2.75	4.00	5.25	9.00	14.00
" Reducing .			1.04	1.50	2.10	3.15	4.60	6.00	10.35	16.00
Return Bends, Clos			.70	.85	1.00	2.25	2.75	4.50		
· · · Oper			.75	1.00	1.75	3.00	3.75	6.00		* o

BRASS UNIONS, CROUND JOINT.



Fig. 1305.

Size, Inches .		\1 <u>\2</u>	1	.3 8	1	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Rough	77 7	.35	.40	.55	.75	1.00	1.40	1.90	2.75	4.00	6.50	8.50
Finished		.32	.36	.50	.70	.90	1.25	1.70	2.50	3.60	6.00	7.75
Octagon, Rough		.35	.40	.55	.75	1.00	1.40	1.90	2.75	4.00	6.50	8.50
" Finished		.50	.55	.75	1.00	1.50	2.00	2.50	3.00	4.50		

FINISHED BRASS FITTINGS. IRON PIPE SIZES.

MALLEABLE IRON PATTERN.

Size			18	$\frac{1}{4}$	3	$\frac{1}{2}$	$\frac{3}{4}$	1	1.1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{5}{1}$	4
Elbows			\$0.24										9.00	14.00	20.00
Elbows, reducing	4			.44	.52	.70	.90	1.25	2.20	2.80	3.80	8.80	11.30	17.50	25.00
Elbows, 45° .				.42	50	.68	.85	1.25	2.10	2.75	3.75	8.75	11.00		
Tees			.30	.40	.60	.80	1.00	1.50	2.00	2.60	3.50	8.00	11.00	18.00	26.00
Tees, reducing				.50	.76	1.00	1.25	1.90	2.50	3.30	4.40	10.00	13.80	22.50	32.50
Crosses	•			.60	.80	1.00	1.20	1.60	3.00	4.00	7.00	10.00	14.00	20.00	29.00
Crosses, reducing	,			.75	1.00	1.30	1.50	2.00	3.80	5.00	8.80	12.50	17.50	25.00	36.00
Caps			.30	.30	.40	.50	.70	.90	1.20	1.60	2.20	4.00	6.00		
Plugs			.18	.20	.24	.30	.40	.56	.80	1.00	1.80	2.50	4.00	6.00	8.00
Reducers, reducing	g on	e size		.32	.44	.64	.90	1.30	1.80	2.25	3.70	6.00	9.00		
Couplings .			.20	.28	.32	.50	.75	1.00	1.20	1.80	2.70	-4.80	-7.00		
Couplings, right an	d le	ft.		.31	.36	.55	.82	1.10	1.35	2.00	3.10				
Lock Nuts .			.20	.20	.24	.30	.40	.60	.90	1.40	1.90	3.00	5.50		
Bushings				.20	.24	.28	42.	.76	1.00	1.35	2.00	3.00	5.00		
Return Bends, clos	e.	•				1.20	1.60	2.30	3.50	5.00	7.00				* 0

CAST IRON HYDRAULIC FITTINGS. SUITABLE FOR VERY HIGH WORKING PRESSURE.



ELBOW.



TEE.



		Fi	g. 130)6.				Fig	. 1307	7.				J	Fig. 1	1308.		
Size						1 2	3,	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	25	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Hydra	ulli	c Elbe	S.M.C			\$0.30	.45	.50	.70	.80	1.25	1.85	2.25	2.75	3.00	4.00	5.00	6.00
4.		6.6	45°			.45	65	.75	1.00	1.25	1.75	2.25	2.50	3.00	3.50	4.50	5.95	6.95
6.6		Tees				.45	65	.75	1.05	1.30	1.90	2.75	3.30	4.00	4.50	6.00	7.50	9.00
4.6		Cross	es			.60	.90	1.00	1.40	1.60	2.50	3.70°	4.50	5.50	6.00	8.00	10.00	19.00
******	***	Flang	e Un	ions).	1.20	1.30	1.40	1.50	2.00	2.25	3.00	3.50	4.00	4 50	5.00	5.50	6.50

WROUGHT IRON COUPLINGS.



Fig. 1209

Size of Pipe															
Size of Pi	ре			§ 1	§ 1	14 13	2 2	<u>)</u> 3 3;	} 4 4	l <u>}</u> 5	6 7	8 1	0 12		
Coupling	В.	. E	ach, \$0 0	5 06 .07	.10 .13	.17 .21	.28 .4	0 .00 .80	0 1.00 1.	50 1.65	2 40 3 25	4.25 7.3	50 10 00		
	R, a	na L.		7 .CS .II	15 .20	2530	.50 .8	51.201.6	0.2.00						
.6	Galv	anized	.0	6 .08 .10	.13 .18	.25 .32	.40 .5	5 .80 1.0	5 1.40 2	9) 2.25	3.25				
			WRO	DUCH	T IF	RON	OU	ART	FP F	ENI	36				
	WROUGHT IRON QUARTER BENDS. Size														
Rading Inches 1 11 91 91 41 6 9															
Radius Inches 1 11 91 91 41 6															
Each					.55	_	_	2	_				16		
Each \$0.40 .55 .75 1.00 1.30 1.70 2.50 3.50 4.75 6															
WROUGHT IRON RETURN BENDS.															
G:								IUK	IN D		5.				
Size.	P	٠		_	3 4	1	1	$1\frac{1}{2}$	2	21	3	31	4		
Radius,			Inches	1	13	$2\frac{1}{2}$	34	44	6	8	12	14			
Each				\$0.65	.95	-		-					16		
20011	•	•						2.35	3.15	4.75	6.75	9.25	12.75		
			These	Bends a	re mad	de from	Stand	lard Ex	tra Hea	vy Pir	pe.				
										- L					

EXTRA HEAVY.

Size,				Inches,	$\frac{3}{4}$	1	$1\frac{1}{4}$	11	2	$2^{\frac{1}{3}}$	3	$3\frac{1}{3}$	4
Extra	Heavy	Elbows,		. Each,	\$0.30	.35	.45	.60	.75	1.25	2.00	2.75	3.50
	4.6	Elbows	Redu	cing, '	.40	.45	.55	.75	.95	1.55	2.50	3.40	4.40
**	+ 6	Elbows	45°	4.4	.49	.45	.55	.70	.90	1.50	2.50	3.50	4.50
* *	h 6	Elbows,	R. and	1 L., "	.40	.45	.55	.75	.95				
	6.6	Tees,			.50	.55	.70	.90	1.15	1.80	3.00	4.25	5.50
4.6	6.6	Tees, R	educir	ig "	.65	.70	.90	1.15	1.40	2.25	3.75	5.30	6.85
* *	6.6	Crosses,			.65	.70	.90	1.20	1.50	2.50	4.00	5.50	7.00
. 6	4.6	Crosses	Redu	cing, "	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85	8.75
٠.	4.6	Solid Pl	ugs		.05	.06	.10	.13	.20	.35	.50	.75	.85
	6.6	Flange	$\stackrel{\circ}{\mathrm{Union}}$	s "	.70	.80	1.00	1.15	1.50	1.90	2.25	2.70	3.15
Size				Inches			41	5	е	17	8	10	10
-							20						
					,		**						
							5.30	6.80	10.00	15.00	21.00	35.00	50.00
	er ,	Elbows,	45°	. "			5.50	6.75	9.75	14.50	21.00	34.00	48.00
	6.6	Tees,					6.75	8.25	12.00	18.00	25.00	42.00	60.00
	4.6	Tees, Re	educin	<u>or</u> , «,			8.50	10.25	15.00	22.50	31.00	52.00	75.00
6.6	4.6	Crosses					8.50	11.00	16.00	24.00	34.00	56.00	80.00
6.6	6.6	Crosses,	Redu	cing, "			10.00	13.75	20.00	30.00	42.00	70.00	100.00
6 h	6.5	Solid Pl	ugs,				1.35	1.75	2.40	3.75	5.50	7.50	10.00
6.6	26	Flange 1					4.00	4.75	6.00	8.25	10.50		
Size, Extra	Heavy	Elbows, Elbows, Elbows, Tees, Tees, Re Crosses Crosses, Solid Pl	Reducin Reducins,	Inches Lach cing, " g, " cing, "	.70		1.00 $4\frac{1}{2}$ $\$4.25$ 5.30 5.50 6.75 8.50 8.50 10.00 1.35	1.15 5 5.50 6.80 6.75 8.25 10.25 11.00 13.75 1.75	1.50 6 8.00 10.00 9.75 12.00 15.00 16.00 20.00 2.40	1.90 7 12.00 15.00 14.50 18.00 22.50 24.00 30.00 3,75	2.25 8 17.00 21.00 21.00 25.00 31.00 34.00 42.00 5.50	$\begin{array}{c} 2.70 \\ 10 \\ 28.00 \\ 35.00 \\ 34.00 \\ 42.00 \\ 52.00 \\ 56.00 \\ 70.00 \\ 7.50 \end{array}$	3.15 12 40.00 50.00 48.00 60.00 75.00 80.00

Fig 1310.

CAST-IRON CAR HEATER FITTINGS.

EXTRA HEAVY ELBOWS.

Size,	Inches, ½	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2} \times 1\frac{1}{4}$	11	2
Right Hand,	Each, \$0.22	.25	.27	.30	.45	.45	.55
Right and Left,		.25	.27	.30	.45	.45	.55



TEES.

Size, Inches, $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}1\frac{1}{4}x\frac{3}{4}x1\frac{1}{4}1\frac{1}{4}x1\frac{1}{4}x\frac{3}{4}1\frac{1}{4}x1\frac{1}{4}x\frac{1}{2}1\frac{1}{2}x1\frac{1}{2}x\frac{1}{2}x\frac{1}{2}x\frac{3}{2}$ Right Hand, Each, \$0.30 .35 .40 .45 .45 .45 .45 .65 .85

Fig. 1311

RETURN BENDS.

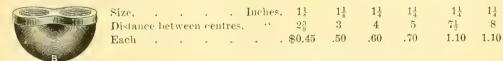


Fig. 1312.

CAR HEATER COUPLINGS.

11

8

2

.55

.65

171

14 .45

.55

CAST-IRON COUPLING.

	Size		Inches,	1	1 1
	Right Hand, .		Each,	\$0.25	.30
	Right and Left,		**	.35	.40
T2: 1040					

Fig. 1313.

WROUGHT-IRON COUPLING.

	Size,		Inches,	1/2	3	1	$1\frac{1}{i}$	1 ½	5
	Actual outside dis			1.09	1.31	1.63	2.13	2.31	2.78
M	Length of coupling			1.63	1.88	2.13	2.13	2.63	2.94
	Right Hand .	-		\$0.10	.15	.20	.30	.40	.50
Fig. 1314.	Right and Left		6.	.15	.23	.30	.40	.50	.60



ELBOW. Fig. 1315.



R. AND L. ELBOW. Fig. 1316.



REDUCING ELLOW.



45° ELBOW.

		Fig. 1316.				Fig. 1514.				Fig. 1318.					
Size,					Inches,	$\frac{1}{4}$				1		1 <u>1</u>	2	$2\frac{1}{2}$	3
Elbows,	R. H.,				Each,	\$0.05	.05	.06	.08	$.10\frac{1}{2}$.16	.20	.28	.50	.75
	R. and L.				6.6	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85
6.	L. H.,				4.4	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85
6.6	Reducing,				4.6		.06	.07	.09	.12	.18	.23	.32	.60	.85
	Pitched,				4.4				.10	.13	.20	.25	.35	.65	1.00
44	with Side		et,		6.6			.18	.24	.30	.48	.60	.84	1.50	2.25
45° Elbo	ows, .		•		64	.06	.06	.07	,10	12	.19	.24	.34	.60	.90
Size,					Inches,										
Elbows,	R. H.,				Lach,	\$1.05	1.20	1.75	2.00	2.75	4.70	6.75	9.00	13.50	20.00
66	Reducing,				4.5	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
44	Pitched,				4.6	1.30	1.50								
44	with Side	Out	let,		6.4	3.15	3.60	5.25	6.00	8.25					
			•				1.45	2.20	2.50	3.45	5.90	8.50	11.25	17.00	25.00



TÉE. Fig. 1319.



Fig. 1320



Y BRANCH.

Fig. 1319.		Fig	g. 132	:0.				Fi	g. 132	1.	
Size,	 Inches,	$\frac{1}{4}$. 3/8	$\frac{1}{2}$	3.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Tees	 Each,	\$0.08	.08	.09	.12	.15	.23	.29	.41	.73	1.10
" Reducing, .	4.6		.09	.10	.14	.17	.27	.33	.47	.83	1.25
" with Side Outlet,	6.6			.27	.36	.45	.70	.90	1.25	2.25	3.25
Size,	 Inches.	31	4	4.	5	6	7	8	9	10	12
Tees,	Each,										
" Reducing, .											
" with Side Outlet,	 6.6	4.50	5.25	7.65	9.00	12.00			٠.		
Size,	 Inches,	38	1 2	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	21	3	$3\frac{1}{2}$
Crosses,	 Each,	\$0.15	.16	.22	.27	.42	.53	.75	1.30	2.00	2.70
" Reducing .						.46	.60	.83	1.45	2.20	3.00
Y Branches,	 66		.20	.28	.34	.54	.66	.94	1.66	2.50	3.50
" Reducing,	. "		23	.33	.40	.62	.76	1.08	1.90	2.90	4.00
Size,	Inches,		4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Crosses,											
" Reducing, .						8.00					
Y Branches,				5.90	7.00	9.20	15.60	22,50	*	45.00	67.00
" Reducing,			4.60	6.80	8.00	10.60	18.00	26.00		51.75	77.00

For Galvanized Cast-iron Fittings, See page 377.



RETURN BENDS.



CLOSE.

OPEN.

Fig. 1322.	Fig. 1323.
Cigo inches	
Size, inches	. $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 Each .18 .20 .22 .28 .40 .57 1.20 1.70
" open	"
back outlet	38 .42 .60 .80 1.15 2.00 3.00
close, R. and L. or L. H.	.21 .23 .26 .33 .46 .66 1.40 1.95
open, R. and L. or L. H.	30 .35 .46 .64 .92 1.55 2.50
' close pitched, R. H	
" close pitched, R. and L. or L. H	
DIMENSIONS OF	RETURN BENDS.
	$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4
Close . Centre to Centre, inches . 1	
Open . " " . 1	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
DETUDU DENDO	WIDE DATEEN
	WIDE PATTERN.
Size, inches, 1 1 1 1 1 $\frac{1}{4}$	$1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ 2 2 4 4
Centre to Centre, 3 4 5 6 8 4	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Right Hand, each, .45 .50 .60 .75 1.00 1.00 Galvanized, " .80 .90 1.10 1.30 1.60 1.76	
Galvanized,60 .50 1.10 1.50 1.60 1.76	2.00 2.00 2.00 3.20 3.00 5.23 10,00 11,00
OFFS	SETS.
Size, Inches , $\frac{3}{4}$ 1 $1\frac{1}{4}$	$1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 5 6
	20 1.80 3.00 4.00 5.00 6.00 8.00 10.00
	80 2.70 4.50 6.00 7.50 9.00 12.00 15.00
·· 8 ·· · ·90 1.40 2 00 2.	40 3.60 6.00 8.00 10 00 12.00 16.00 20.0 ₀
(B	
CAP. REI	DUCER. LOCKNUT.
	. 1325. Fig. 1326.
Size, inches 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4	$4\frac{1}{2}$ 5 6 7 8 9 10 12
Caps, each	
Reducers, each43 .60 .80 1.00 1.35	
Locknuts, '25 .27 .34 .47 .64	85 .90 1.30 1.70 2.35 2.70 3.00 4.00
, B	USHINGS.
Size, inches . $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$	1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$
Each04 .04 .05	.06 .07 .09 .14 .21 .30 .40
Size, inches . $4 4\frac{1}{2} 5$	6 7 8 9 10 12
Fig. 1327. Each	1.25 1.87 2.75 3.25 3.75 5.00
•	

									2.1		0.1	
	Size, inches	3	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	15	2	25	3	37	4
Tie 1328	Each .	.08	.09	.11	13	.17	.22	.32	.48	.70	1.20	1.50
LIE TOWO:	Elacii.	,										

PLUCS-SQUARE HEAD AND SOLID.

Size. inches Square Head. Solid	, each	\$0.02 $.04$	$.02 \\ .04$	$.02 \\ .04$.03 $.06$.04 .08	$1\frac{1}{4}$.05 .09	$\frac{1\frac{1}{2}}{.07}$.11	$^{2}_{.10}$	2} .18 .27	.25 .38
Size, inches Square Head, each Solid "	•	\$0.38 $.57$.42 .63	$^{4\frac{1}{2}}_{.65}$ $^{1.00}$	$ \begin{array}{r} 5 \\ .88 \\ 1.35 \end{array} $	$\begin{array}{c} 6 \\ 1.20 \\ 1.80 \end{array}$	7 1.85 2.80	$8 \\ 2.75 \\ 4.15$	$9 \\ 3.25 \\ 5.00$	10 3.75 5.75	$ \begin{array}{r} 12 \\ 5.00 \\ 7.50 \end{array} $

PLUCS-SOCKET (COUNTER SUNK) AND LEFT HAND.



Size, inches			$\frac{1}{2}$	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Socket,	each		\$0.04	.06	.08	.09	.11	.15
Left Hand	4.6			.06	.08	.09	.11	.15

Fig. 1330.

CAST-IRON FLANCES.

Common Flange. Not Faced.

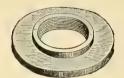


Fig. 1331.

PIPE SIZE	3/8	1 2	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	31/2	4	$4\frac{1}{2}$	5	6
Diam., 3 in. 3\frac{1}{2} 4 4\frac{1}{2} 5\frac{1}{2} 6 6\frac{1}{2} 77\frac{1}{2} 8 8\frac{1}{2} 9 10 11 12 13 14	\$0.10 .15 .22 .25 .35 .45 .50	.10 .15 .22 .25 .35 .45 .50 .65 .75 .90 1.00 1.25	.15 .22 .25 .30 .45 .50 .60 .75 .90 1.00 1.25	.15 .16 .25 .30 .40 .42 .60 .75 .90 1.00 1.25 1.35	.16 .16 .25 .30 .40 .60 .70 .85 .95 .1.15 1.35 1.90 2.25	.22 .30 .40 .40 .55 .70 .85 .95 .15 1.35 1.90 2.25	.35 .35 .42 .50 .62 .80 .90 .10 1.30 1.75 2.15 2.50	.40 .43 .50 .62 .80 .90 1.10 1.25 1.75 2.00 2.50 3.00	.50 .50 .62 .75 .90 1.10 1.15 1.60 2.25 3 00 4.00	.65 .75 .85 .90 1.00 1.15 1.60 2.25 2.75 3.50 4.00	.90 .90 1.00 1.15 1.50 2.50 2.50 3.25 3.75	1.15 1.25 1.50 1.75 2.50 3.00 3.75	1.40 1.50 1.50 1.75 2.30 3.00 3.50	1.50 1.50 1.75 2.20 2.80 3.25
PIPE SIZE									7	8	9	10	12	14
Diam., 11 in. 12 13 14 15 16 17 18 19 20 21									2.20 2.20 2.80 3.25 4.00 5.00 6.50	2.80 2.80 3.25 4.00 5.00 6.50 8.00	3,75 4.00 5.00 5.75 8.00	4.00 4.50 5.00 5.75 7.00 7.50	6.00 7.00 7.00 7.50 8.50	8.50 9.50

Curved and Extra Heavy Flanges made to order at special prices.

STANDARD FLANCE UNIONS, CAST-IRON.



Size			$\frac{1}{2}$	3	1	$1\frac{1}{4}$	1 1	2	21	3	31
Diam. of Flanges			$2\frac{1}{1}\frac{1}{6}$	316	$3\frac{1}{2}$	313	$4\frac{3}{8}$	$5\frac{1}{8}$	$6\frac{1}{16}$	6^{3}_{4}	$7\frac{1}{4}$
Number of Bolts			3	3	3	4	4	4	4	4	4
Each ; .		4	80.40	.46	.52	.64	.78	1.00	1.25	1.50	1.80
Size			4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Diam of Flanges			$7\frac{13}{16}$	$8\frac{1}{4}$	9_{16}^{1}	10	11^{-1}_{76}	$12\frac{1}{8}$	$13\frac{1}{4}$	$15\frac{1}{16}$	$17\frac{1}{4}$
Number of Bolts			4	5	5	6	7	8	9	10	12
Each			\$2.10	2.70	3.15	3.95	5.50	7.00	10.00	11.50	16.00

Fig. 1332.

MALLEABLE IRON FLANCE UNIONS.

Size, inches . . $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4 $4\frac{1}{2}$ 5 6 Black . Each . \$1.25 1.40 1.60 2.00 2.50 3.00 3.50 4.40 5.25 6.00 7.00 8.00 9.00 Galvanized " . 2.50 2.80 3.20 4.00 5.00 6.00 7.00 8.80 10.50 12.00 14.00 16.00 18.00

GALVANIZED CAST-IRON FITTINGS. STANDARD.

Size, inches	· •	$\frac{1}{4}$ $\frac{3}{8}$	$\frac{1}{2}$ $\frac{3}{4}$	1	$1\frac{1}{3}$	$1\frac{1}{2}$ 2	21	3	3‡
Elbows, R. H	Each	\$0.10 .10	.12 .1		A	$.40^{\circ}$ $.56$	1.00	1.50	2.10
45° Elbows	6.6	.12 .12	.14 .2	024	.38	.48 .68	1.20	1.80	2.50
Reducing Elbows	6.6	12	.14 .1	8 .24	.36	.46 .64	1.20	1.70	2.40
Tees	4.4	.16 .16	.18 .2	4 .30	.46	.58 .82	1.46	2.20	3.00
Reducing Tees	6.6	18	.20 .2	8 .34	.54	.66 .94	1.66	2.50	3.50
Crosses	4.1	30	.32 .4	4 .54	.84 1	.06 1.50	2.60	4.00	5.40
Return Bends, Close	4.4		.36 .4	0 .44	.56	.80 1.14	2.40	3.40	
" Open	4.4			2 .60	.80 1	.10 1.60	2.70	4 40	
" " Black Outlet .	6.6		7	6 .84	1.20 1	.60 2.30	4.00	6.00	
Flange Unions	6.5		.80 .9	2 1.04	1.28 1.	.56 2.00	2.50	3.00	3.60
" " Lip			1.00 1.2	5 1.50	1.65 2	.00 2.50	2.90	3.35	4.55
Caps, Cast-iron	4.4					52	.80	1.08	1.50
Reducers	+ 1					86	1.20	1.60	2.00
Locknuts						50	.54	.68	.94
Y Bends	4.4		.40 .5	6 .68	1.08 1.	.32 1.88	3,32	5.00	7.00
Offsets, to offset 4 inches	6.6		. , .	0 1.40	2.00 2	.40 3.60	6.00	8.00	10.00
6	66		1.	34 2.10	3.00 3	.60 5.40	9.00	12.00	15.00
8			1.	80 2.80	4.00 4	.80 7.20	12.00	16.00	20.00
Bushings	4.6	08	.08 .	0 .12	.14	.18 .28	.42	.60	.80
		.04 .04		06 .08		.14 .20			.76
Plugs	•	.04 .04	.04					.50	.76
Plugs		.04 .04		6	.10	.14 .20	.36 9		.76 12
Plugs	Each	.04 .04 . 4 \$2.40	$4 \cdot 04 \cdot 04$ $4\frac{1}{2} \cdot 5$	6 0 5.50	.10 7 9.40	.14 .20 8	.36 9 8.00	.50 10	.76 12 40.00
Plugs	. Each	. 04 .04 . 4 \$2.40 2.90	$egin{array}{cccc} 4 & .04 & .6 \ 4rac{1}{2} & 5 \ 3.50 & 4.6 \ \end{array}$	6 0 5.50 0 6.90	.10 7 9.40 11.80	.14 .20 8 13.50 1	.36 9 8.00 2.50	.50 10 27.00	.76 12 40.00 50.00
Plugs	. Each	.04 .04 . 4 \$2.40 2.90 2.80	$egin{array}{cccc} 4 & .04 &$	6 0 5.50 0 6.90 0 6.30	.10 7 9.40 11.80 10.80	.14 .20 8 13.50 1 17.00 2	.36 9 8.00 2.50 1.00	.50 10 27.00 34.00	.76 12 40.00 50.00 46.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees	. Each	.04 .04 . 4 \$2.40 2.90 2.80 3.50	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.50 00 6.90 0 6.30 0 8.00	.10 7 9.40 11.80 10.80 13.60	.14 .20 8 13.50 1 17.00 2 15.50 2	.36 9 8.00 2.50 1.00 6.00	.50 10 27.00 34.00 31.00	.76 12 40.00 50.00 46.00 58.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees	Each	. 04 .04 . 4 \$2.40 2.90 2.80 3.50 4.00	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.50 00 6.90 0 6.30 0 8.00 0 9.20	.10 7 9.40 11.80 10.80 13.60 15.60	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3	.36 9 8.00 2.50 1.00 6.00	.50 10 27.00 34.00 31.00 39.00 45.00	.76 12 40.00 50.00 46.00 58.00 67.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses	Each	. 04 .04 . 4 \$2.40 2.90 2.80 3.50 4.00 6.30	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 0 5.50 0 6.90 0 6.30 0 8.00 0 9.20 0 14.50	.10 7 9.40 11.80 10.80 13.60 15.60 24.50	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3	.36 9 8.00 2.50 1.00 6.00 0.00 7.00	.50 10 27.00 34.00 31.00 39.00	.76 12 40.00 50.00 46.00 58.00 67.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions	Each	.04 .04 . 4 \$2.40 2.90 2.80 4.00 6.30 4.20	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 0 5.50 0 6.90 0 6.30 0 8.00 0 9.20 0 14.50 30 7.90	.10 7 9.40 11.80 10.80 13.60 15.60 24.50 11.00	8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4	36 9 8.00 2.50 1.00 6.00 7.00 9.00	.50 10 27.00 34.00 31.00 39.00 45.00 70.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions Lip	Each	.04 .04 . 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 0 5.50 0 6.90 0 6.30 0 8.00 0 9.20 0 14.50 0 7.90 5 8.30	.10 7) 9.40) 11.80) 10.80) 13.60) 15.60) 24.50) 11.00 5 11.65	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 9.00 5.00	.50 10 27.00 34.00 31.00 39.00 45.00 70.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Crosses Flange Unions Lip Caps	Each	. 04 .04 . 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00 1.74	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.50 00 6.90 00 6.30 00 8.00 00 9.20 00 14.50 60 7.90 55 8.33 00 3.10	.10 7 9.40 11.80 10.80 13.60 15.60 24.50 11.00 5 11.65 5 5.00	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 9.50	.50 10 27.00 34.00 31.00 89.00 45.00 70.00 23.00 29.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Crosses Flange Unions Caps Reducers	Each	.04 .04 . 4 \$2.40 2.90 2.80 3.50 4.00 6.30 4.20 5.00 1.74 2.70	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.55 00 6.90 00 6.30 00 8.00 00 9.20 00 14.50 00 7.90 15 8.33 10 3.10 10 5.40	.10 7 9.40 11.80 10.80 13.60 15.60 11.00 5 11.65 1.65 10.70	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 9.50	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 11.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions Caps Reducers Locknuts	Each	.04 .04 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00 1.74 2.70 1.28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.55 00 6.90 00 6.30 00 8.00 00 9.20 00 14.50 00 7.90 15 8.33 10 3.10 10 5.40 10 2.60	.10 7 9.40 11.80 10.80 13.60 15.60 24.50 11.00 5 11.65 5 5.00 10.70 3.40	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1 4.70	.36 9 8.00 2.50 1.00 6.00 7.00 0.00 5.00 9.50 6.70 5.40	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 11.00 20.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 8.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions "Lip Caps Reducers Locknuts Y Bends	. Each	.04 .04 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00 1.74 2.70 1.28	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.55 00 6.90 00 6.30 00 8.00 00 9.20 00 14.50 00 7.90 15 8.33 10 3.10 10 5.40 10 2.60	.10 7) 9.40) 11.80) 10.80) 13.60) 24.50) 11.00 5 11.65) 5.00) 10.70) 3.40) 31.20	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1 4.70	.36 9 8.00 2.50 1.00 6.00 7.00 0.00 5.00 9.50 6.70 5.40	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 11.00 20.00 6.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 8.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions Caps Reducers Locknuts	Each	.04 .04 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00 1.74 2.70 1.28 8.00 1	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.56 00 6.90 00 6.30 00 9.20 00 14.56 00 7.90 15 8.33 10 3.10 10 5.40 10 2.60 11 4.40	.10 7 9.40 11.80 10.80 13.60 15.60 24.50 11.00 5 11.65 5 .00 10.70 3.40 31.20	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1 4.70 45.00	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 0.00 5.00 9.50 6.70 5.40	.50 10 27.00 84.00 81.00 89.00 45.00 70.00 23.00 29.00 11.00 20.00 6.00 90.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 30.00 8.00 134.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions "Lip Caps Reducers Locknuts Y Bends Offsets, to offset 4 inches	Each	.04 .04 \$2.40 2.90 2.80 3.50 4.00 6.30 4.20 5.00 1.74 2.70 1.28 8.00 1 12.00 .	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.56 00 6.90 00 6.30 00 9.20 00 14.56 00 7.99 00 3.10 00 5.40 00 2.60 00 18.40 00 20.00	.10 7 9.40 11.80 10.80 13.60 15.60 24.50 11.00 5 11.65 5 .00 10.70 3.40 31.20	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 5.70 13.50 1 4.70 45.00	36 9 8.00 2.50 1.00 6.00 0.00 7.00 0.00 5.00 9.50 6.70 5.40	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 11.00 20.00 6.00 90.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 30.00 8.00 134.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions "" Lip Caps Reducers Locknuts Y Bends Offsets, to offset 4 inches "" 6 " "" 8 ""	Each	.04 .04 4 \$2.40 2.90 2.80 3.50 4.00 6.30 4.20 5.00 1.74 2.70 1.28 8.00 1 12.00 18.00 24.00	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 0 5.50 0 6.90 0 8.00 0 9.20 0 14.56 0 7.90 5 8.30 0 3.10 0 5.40 0 2.60 0 18.40 0 20.00 0 30.00 0 40.00	.10 7 9.40) 11.80) 10.80) 13.60) 15.60) 24.50) 11.00 5 11.65) 5.00) 10.70) 3.40) 31.20	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1 4.70 45.00	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 9.50 6.70 5.40	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 11.00 20.00 6.00 90.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 8.00 134.00
Plugs Size, inches Elbows, R. H. 45° Elbows Reducing Elbows Tees Reducing Tees Crosses Flange Unions '' Lip Caps Reducers Locknuts Y Bends Offsets, to offset 4 inches '' 6 '' '' 8 '' Bushings	Each	.04 .04 4 \$2.40 2.90 2.80 4.00 6.30 4.20 5.00 1.74 2.70 1.28 8.00 1 12.00 18.00 24.00 1.00	$egin{array}{cccccccccccccccccccccccccccccccccccc$	6 00 5.50 00 6.90 00 8.00 00 9.20 00 14.55 00 7.90 05 8.30 00 3.10 00 5.40 00 2.60 00 18.40 00 20.00 00 30.00 00 40.00 05 2.50	.10 7 9.40) 11.80) 10.80) 13.60) 15.60) 24.50) 11.00 5 11.65) 5.00) 10.70) 3.40) 31.20 	.14 .20 8 13.50 1 17.00 2 15.50 2 19.50 2 22.50 3 35.00 4 14.00 2 16.65 2 5.70 13.50 1 4.70 45.00 	.36 9 8.00 2.50 1.00 6.00 0.00 7.00 0.00 5.00 9.50 6.70 5.40	.50 10 27.00 34.00 31.00 39.00 45.00 70.00 23.00 29.00 6.00 90.00	.76 12 40.00 50.00 46.00 58.00 67.00 105.00 32.00 34.00 14.00 8.00 134.00

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WROUGHT IRON NIPPLES.



LIST OCT. 7, 1899.

PRICE, EACH.

THREADED RIGHT HAND.



Fig. 1333.

Fig. 1334.

LENGTH, INCHES.	Close or					-Extra	Long	Mipple	9.———		
Close. ShortLong	Sizes. Short.	Long.	4	5	6	7	8	- 9	10	11	12 ins.
	\$ \$0.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
	1 .04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1^{8} $1^{\frac{1}{3}}$ 2 $2^{\frac{1}{2}}$ 3 $3^{\frac{2}{3}}$	3 .04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
	1 .05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
$1\frac{18}{8}$ $2^{\frac{1}{2}}$ $2\frac{1}{2}$ $3^{\frac{1}{2}}$ $3^{\frac{1}{2}}$ $4^{\frac{1}{2}}$	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	.09		.11	.13	.17	.18	.20	.22	.24	.26
$1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4	1 .08	.13		.15	.18	.23	.25	.28	.31	.34	.36
$\begin{array}{cccccccccccccccccccccccccccccccccccc$.17		.20	.24	.29	,33	.36	.40	.44	.47
$\begin{array}{cccccccccccccccccccccccccccccccccccc$.20		.25	.29	.36	.40	.45	.50	.54	.59
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 .18	.27		.33	.38	.50	.54	.59	.65	.72	.77
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	21 .39	.59			.68	.90	.97	1.96	1.17	1.26	1.35
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\tilde{3}^{2}$.48	.72			.85	1.08	1.20	1.33	1.45	1.58	1.70
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	31 .75	1.05				1.30	1.45	1.60	1.75	1.90	2.05
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 .85	1.20				1.52	1:69	1.87	2.05	2.22	2.40
$\frac{3}{3}$ $\frac{4}{4}$ $\frac{4\frac{1}{2}}{5}$ $\frac{5}{5}$ $\frac{1}{6}$ $\frac{6}{5}$		1.70				2.25	2.50	2.75	2.95	3 17	3.40
$3\frac{1}{2}$ $4\frac{1}{2}$ 5 $5\frac{1}{2}$ 6 $6\frac{1}{2}$		2.45				2.58	2.83	3.10	3.35	3.60	3.85
$3\frac{1}{2}$ $4\frac{1}{2}$ 5 $5\frac{1}{2}$ 6 $6\frac{1}{2}$		2.90				3.05	3.35	3.70	4.00	4.30	4.65
92 72 7 7	7 3.20	3.60				4.05	4.45	4.90	5.30	5.75	6.15
	8 3.55	4.05			• •	4.55	5.05		6.00	6.50	7.00
		6.50			• ••	1.00	0.00	7.10	7.75	8.40	9.00
5 6 8						• •					
5 6 8	10 6.75	8.25						8.90	9.70	10.40	11.15
	11						• •	***		40.00	40.05
5 6 8	12 8.00 1	10.00						10.80	11.75	12.70	13.65
-	HDEADED	PIC	чт	AND	1 55	T W	AND				

THREADED RIGHT AND LEFT HAND.

3 4 7 8	$\begin{array}{c} 1_{\frac{1}{2}} \\ 1_{\frac{1}{2}} \\ 1_{\frac{1}{2}} \\ 1_{\frac{1}{2}} \end{array}$	2	$2rac{1}{2} \ 2rac{1}{2} \ 2rac{1}{2}$	3 3	$\frac{3\frac{1}{2}}{3\frac{1}{2}}$	1 2 1 4 3 8	\$0.05 $.05$ $.05$.08 .08	.09 .09	.11 .11	.13 .13 .13	.16 .16 .16	.18 .18 .18	.20 .20 .20	,23 ,23 ,23	.25 ,25 ,25	.27 .27 .27
11	11	2	$2\frac{1}{2}$	3	31	1234	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31
$\frac{1\frac{1}{8}}{1\frac{3}{8}}$	2~	$2\frac{1}{2}$	3~	$3\frac{1}{2}$	4	$\frac{3}{4}$.08	.12		.15	.17	.23	.25	.27	.29	.32	.35
11	2	$2\frac{1}{2}$	3	$3\frac{\tilde{1}}{2}$	4	1 *	.11	.18		.20	.24	.31	.33	.37	.41	.45	.48
$1\frac{7}{2}$ $1\frac{5}{8}$ $1\frac{3}{4}$	$2\frac{1}{2}$	3	31/2	4	$\frac{4\frac{1}{2}}{4\frac{1}{2}}$	11/4	.15	.23		.27	.32	.39	.45	.50	.55	.60	.65
13	21	3	$3\tilde{4}$	4	$4\tilde{1}$	$1\frac{7}{2}$.18	.27		.34	.39	.48	.52	.60	.67	.72	.80
2	$2\frac{1}{2}$	3	$3\frac{\tilde{1}}{2}$	4	$4\frac{1}{2}$	2	.24	.36		.43	.51	.67	.72	.80	.87	.96	1.03
$\frac{\tilde{2}_1}{2}$	3	$3\frac{1}{2}$	4	41	5	$2\frac{1}{3}$.52	.79			.91	1.20	1.30	1.40	1.55	1.68	1.80
21	3		4	$\frac{4\frac{1}{2}}{4\frac{1}{2}}$	5	3~	.65	.96			1.13	1.44	1.60	1.77	1.93	2.10	2.27
$\frac{\tilde{2}^{2}}{2^{3}}$	4		5	$5\frac{1}{2}$	6	31	1.00	1.40				1.75	1.95	2.15	2.35	2.55	2 75
$2\frac{1}{2}$ $2\frac{1}{2}$ $2\frac{3}{4}$ 3	$\tilde{4}$	$4\frac{1}{2}$	5	$5\frac{\tilde{1}}{2}$	6	4^{\degree}	1.15	1.60				2.00	2.25	2.50	2.75	3.00	3.25

Add 60 per cent. to above prices for Galvanized Nipples threaded right and left.

CALVANIZED THREADED RIGHT	HAN	D.
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3 4	$1\frac{1}{2}$	2	21	3	31	1/8	\$0.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
7	$1\frac{\tilde{1}}{2}$	2	$2\frac{7}{2}$	3	31	1	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1	$1\frac{1}{2}$	2	$2\frac{\tilde{1}}{2}$	3	$3\frac{1}{2}$	3 8	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
11	$1\frac{3}{5}$	2	$2\frac{1}{2}$	3	3 [.06	.11	.13	.16	.18	.23	.26	.28	.31	.33	.36
$1\frac{3}{8}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	1 2 3 4	.08	.14		.18	.21	.26	.29	.32	.35	.38	.41
15	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	1	.11	.19		.24	.28	.34	.38	.42	.47	.51	.55
$1\frac{5}{8}$	21	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	14	.17	.29		.32	.38	.45	.51	.57	.63	.69	.75
$1\frac{3}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$1\frac{1}{2}$.21	.35		.39	.46	.55	.63	.70	.77	.84	.91
2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	2	.27	.47		.52	.61	.74	.83	. 93	1.03	1.13	1.23
$2\frac{1}{2}$	3	$3\frac{1}{2}$		$4\frac{1}{2}$	5	$2\frac{1}{2}$.56	.86			1,00	1.26	1.41	1.56	1.71	1.86	2.01
$2\frac{1}{2}$	3	31	4	$4\frac{1}{2}$	5	3	.70	1.10			1.30	1.60	1.80	2.00	2.20	2.40	2.60
$2\frac{3}{4}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$3\frac{1}{2}$	1.20	1.70				2.10	2.35	2.60	2.85	3.15	3.40
3	4	$4\frac{1}{2}$		$5\frac{1}{2}$	6	4	1.35	1.87				2.30	2.60	2.90	3.20	3,50	3.80
3	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$4\frac{1}{2}$	1.85	2.60				3.30	3.65	4.05	4.45	4.85	5.25
$3\frac{1}{2}$	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	5	2.30	3.15				3.75	4.20	4.60	5.00	5.40	5.85
$3\frac{1}{2}$	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	6	2.80	4.25				4.50	5.00	5.55	6.05	6.60	7.15
4	5	6				7	4.25	4.95				5.65	6.35	7.05	7.75	8.45	9.20
4	5	6				8	5.00	5.80		• •	• •	6.65	7.50	8.35	9.25	10.10	10.95

BUNDY STANDARD RADIATOR.

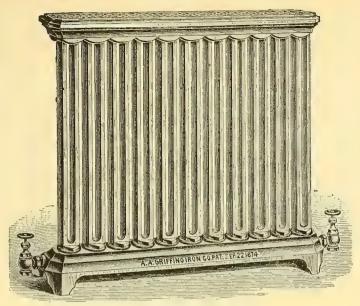


Fig. 1335.

The regular height of leg of the Bundy Standard Radiators makes the distance from floor to centre of tapping $3\frac{1}{8}$ inches; regular high leg, $4\frac{1}{2}$ inches; special high legs, from 5 to 10 inches. Unless otherwise ordered, Bundy Standard Steam Radiators are tapped 1 x $\frac{3}{4}$ inch for two-pipe; $1\frac{1}{4}$ inch for one-pipe. All openings have right hand threads, unless otherwise ordered.

					STE	AM-	ONE	ROW.						
Nur	nber	of Loops	in each Roy	v	4	6	8	10	12	14	16	20	24	26
Len	gth o	f Radiate	or, inches .			$21\frac{3}{4}$	$28\frac{1}{4}$	$34\frac{3}{4}$	$41\frac{1}{1}$	$47\frac{3}{4}$	$54\frac{1}{4}$	$67\frac{1}{4}$	79^{3}_{4}	$86\frac{1}{4}$
Wid	lth of	Bases, i	nches		5_{2}^{1}	$5\frac{1}{2}$	$5\frac{1}{2}$	$5\frac{1}{2}$						
42 i	nches	Height,	No. square	feet.	14	21	28	35	42	49	56	70	84	91
36	4.4	+ 6	4.5		12.	18	24	30	36	42	48	60	72	78
30	4.6	6.6	6.6	44 .	10	15	20	25	30	35	40	50	60	65
24	6.6	6.6	4.6	66. 0	8	12	16	20	24	28	32	40	48	52
			S	TEAI	VI RA	ADIA'	TOR-	-TWO	ROV	٧.				
Nur	nber	of Loops	in each Roy	٧	4	6	8	10	12	14	16	20	24	26
		-	or, inches .			$21\frac{3}{4}$	$28\frac{1}{4}$	$34\frac{3}{4}$	$41\frac{1}{4}$	$47\frac{3}{4}$	$54\frac{1}{4}$	$67\frac{1}{4}$	$79\frac{3}{4}$	$86\frac{1}{4}$
	Second Co.		ches			9_{4}^{5}	$9\frac{3}{4}$	$9\frac{3}{4}$	$9\frac{3}{4}$	$9\frac{3}{4}$	$9\frac{3}{4}$	$9\frac{3}{4}$	$9\frac{3}{4}$	93
42 in	uches	Height,	No. square	feet.	28	42	56	70	84	98	112	140	168	182
36	4.4	4.6	6.	65	24	36	48	60	72	84	96	120	144	156
30	4.6	h h	6.6		20	30	40	50	60	70	80	100	120	130
24	64	+ 6	6.6	٠.	16	24	32	40	48	56	64	80	96	104
					STEA	м т	HREE	ROV	٧.					
Nur	nber	of Loons	in each Roy	v	3	4	5	6	7	8	10	11	12	15
			or, inches .			$15\frac{1}{3}$	$18\frac{1}{5}$	22	26	$28\frac{3}{8}$	$34\frac{1}{4}$	39	$42\frac{1}{4}$	$51\frac{3}{4}$
	0		ches			131	13를	$13\frac{1}{2}$	$13\frac{1}{2}$	$13\frac{1}{2}$	$13\frac{1}{2}$	131	$13\frac{1}{2}$	131
			No. square			42	$52\frac{1}{2}$	63	$73\frac{1}{2}$	84	105	$115\frac{1}{2}$	126	$157\frac{1}{2}$
36	+6	66	4.6	4.	27	36	45	54	63	72	90	99	108	135
30		6 %	44	4.6	$22\frac{1}{2}$	30	371	45	$52\frac{1}{2}$	60	75	825	90	$112\frac{1}{2}$
24	4.6	**	64	4.6	18	24	30	36	42	48	60	66	72	90

STEAM-FOUR ROW.

Len	igth of	of loops in Radiato base, inc height, I	r, inch	es .		$\begin{array}{c} 4 \\ 16\frac{1}{8} \\ 17\frac{1}{2} \\ 56 \\ 48 \\ 40 \end{array}$	$\begin{array}{c} 6\\ 22_{4}^{3}\\ 17_{2}^{\frac{1}{2}}\\ 84\\ 72\\ 60 \end{array}$	$\begin{array}{c} 8 \\ 29\frac{1}{4} \\ 17\frac{1}{2} \\ 112 \\ 96 \\ 80 \\ \end{array}$	$ \begin{array}{c} 10 \\ 35\frac{3}{8} \\ 17\frac{1}{2} \\ 140 \\ 120 \\ 100 \end{array} $	12 42\\ 17\\\ 168 144 120	14 $48\frac{3}{8}$ $17\frac{1}{2}$ 196 168 140	18 $60\frac{1}{2}$ $17\frac{1}{2}$ 252 216 180	$ \begin{array}{c} 20 \\ 67\frac{1}{4} \\ 17\frac{1}{2} \\ 280 \\ 240 \\ 200 \\ 100 \end{array} $	22 $73\frac{1}{2}$ $17\frac{1}{2}$ 308 264 220	24 79\frac{3}{5} 17\frac{1}{2} 336 288 240
$\frac{30}{24}$	6.				:	40 32	48	64	80	96	112	144	160	176	192

The number of square feet given in above tables are for "Standard Loop." If ordered with "Enlarged Loop" the heating surface is one-sixth greater. Dimensions of length and base and number of loops the same. See also page 379.

"ELITE" DIRECT STEAM AND WATER RADIATORS.

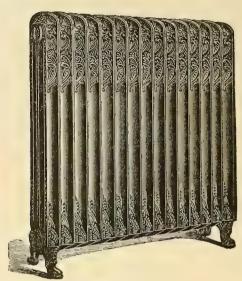


Fig. 1336.

No.	of sec	ctions .			4	6	8	10	12	14	16	18	20	25
Ler	igth of	f Radiato	r, inch	es.	12	18	24	30	36	42	48	54	60	75
		height, I			$26\frac{2}{3}$	40	$53\frac{1}{3}$	662	80	$93\frac{1}{3}$	$106\frac{2}{3}$	120	$133\frac{1}{3}$	$166\frac{2}{3}$
38	4.4	3,,	***		22°	33	44	55	66	77	88	99	110	$137\frac{1}{2}$
30	8.4	4.4	4.6	4.6	182	28	$37\frac{1}{2}$	46^{2}	56	651	74%	84	$93\frac{1}{3}$	$116\frac{2}{3}$
24	4.4	6.6	4.4		15	$22\frac{1}{2}$	30	$37\frac{1}{3}$	45	$52\frac{1}{5}$	60	$67\frac{1}{5}$	75	$95\frac{3}{4}$
20	6.6	6.6	h 6	h 4	11	$16\frac{1}{5}$	22	$27\frac{5}{3}$	33	$38\frac{1}{2}$	44	$49\frac{1}{5}$	55	$68\frac{3}{4}$

Each section is $8\frac{3}{8}$ in. wide. Width of legs, $8\frac{1}{2}$ in. Height of centre of tapping from floor: if tapped, $\frac{3}{4}$ in., $4\frac{5}{8}$ in., 1 in., $4\frac{3}{4}$ in., $1\frac{1}{4}$ in., $4\frac{7}{8}$ in.; $1\frac{1}{2}$ and 2 in., 5 in.

COLUMBIA DIRECT STEAM AND WATER RADIATORS.

No.	of se	ctions			4	6	8	10	12	16	20	24	28	32
Len	gth o	f Radiato	r, incl	e:.	10	15	20	25	30	40	50	60	70	80
45 i	nches	height, I	No. sq.	feet	20	30	40	50	60	80	100	120	140	160
38	6.6		14		16	24	32	40	48	64	80	96	112	128
32	4.6	6.6	6 -	4.5	13분	20	$26\frac{2}{3}$	$33\frac{1}{2}$	40	$53\frac{1}{3}$	$66\frac{2}{3}$	80	$93\frac{1}{3}$	$106\frac{2}{3}$
26	64	* *	+ 6	* *	$10\frac{3}{3}$	16	21분	$26 \stackrel{?}{ ext{ iny 5}}$	32	$42\frac{3}{3}$	$53\frac{1}{3}$	64	743	851
23	6.6	+ 6	4.4	6.6	$9\frac{1}{3}$	14	$18\frac{5}{3}$	$23\frac{7}{3}$	28	$-37\frac{1}{3}$	463	56	$65\frac{1}{3}$	$74\frac{2}{3}$
20	4.6	4.4		6 L	8	12	16	20	24	$32\degree$	40	48	56	64

Each section is 8 in. wide. Width of legs, 9 in. Height of centre of tapping from floor: if tapped, $\frac{3}{4}$ in., $\frac{37}{8}$ in.; 1 in., 4 in.; $\frac{11}{4}$ in., $\frac{41}{8}$ in.; $\frac{11}{2}$ and 2 in., $\frac{41}{4}$ in.

All openings have right hand threads unless otherwise ordered. Connected with extraheavy slip nipples; steam, 2 in. at bottom; water, 2 in. at bottom and $1\frac{5}{8}$ at top. In estimating length of radiator, add 1 in. for the bushing, or plug at each end, when so tapped.

Elite sections are 3 in. long. Columbia sections are 2½ in. long.

JENKINS BROS. RADIATOR VALVES.



wood wheel globe. Fig. 1337.



WOOD WHEEL ANGLE. Fig. 1338.



LOOK SHIELD ANGLE. Fig. 1339.

	. ,	;	D. 1000.	•				. 2000.	
	RADIATOR VALVES, SCREW	VED E	NDS,	RICHT	OR	LEFT	THE	READS	S.
No.	. Size	1	3 8	1/2	3	1	$1\frac{1}{4}$	13	2
1	Wood Wheels, rough body, fin-			_			-	_	
	'ished trimmings	\$1.50	1.85	2.00	2.50	3.20	4.50	6.25	10.50
	Wood Wheels, finished all over	2.00	2.25	2.50	3.00	3.75	5.25	7.25	11.75
3	" rough body,								
	nickel-plated trimmings .	1.80	2.15	2.30	2.80	3.50	4.80	6.55	10.80
4	Wood Wheels, rough body,								
	nickel-plated all over .	1.90	2.25	2.40	2.90	3.60	4.90	6.65	10.90
õ	Wood Wheels, finished and								
	nickel-plated all over .	2.40	2.70	2.90	3.40	4 15	5.65	7.65	12.15
	LOOK SHIELD VALVES S	SAME PI	PIOP AS	Woon	WHEEL	VATVE	d		

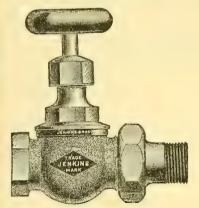


Fig. 1340

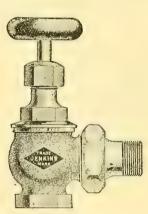


Fig. 1341.

	RADIATOR VALVE	ES, GLC	BE OR	ANGL	E, MA	LE OF	? FEN	MALE	UNION	IS.
No	. Size				1.5	3	1	$1\frac{1}{3}$	1 }	2
6	Wood Wheels, rough	gh body,	finished	trim-	_	•		-	_	
	mings				\$2.75	3.50	4.30	5.85	7.75	12.60
7	Wood Wheels, finish	ned all ov	er .		3.20	4.00	4.80	6.40	8.75	13.85
- 8	" rough	a body,	nickel-	plated						
	trimmings .				3.05	3.80	4.60	6.15	8.05	12.90
9	Wood Wheels, rou	gh body	, nickel-	plated						
	all over				3.15	3.90	4.70	6.25	8.15	13.00
10	Wood Wheels, finish	ied and n	ickel-pla	tedall						
	over				3.60	4.40	5.20	6.80	9.15	14.25
Te	e Handle Keys		1	3 6	1 3	3	1	$1\frac{1}{1}$	11	2
	ice, each				.17	$\frac{3}{17}$.18	.18	$\frac{1\frac{1}{2}}{.27}$.27

RADIATOR VALVES, WOOD WHEEL, BRASS DISC.



PLAIN. Fig. 1342.



MALE UNION. Fig. 1343.

Size, inches		1/2	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Plain		\$1.40	1.75	2.35	3.25	4.35	6.85
" " Plated Trimmings		1.60	2.00	2.65	3.55	4.65	7.35
" " Plated all över .		1.70	2.10	2.75	3.70	4.85	7.60
Finished all over		2.15	2.50	3.25	4.35	5.75	9.00
" and Plated all over .		2.45	2.85	3.65	4.80	6.25	9.75
Rough Body, Plain		2.15	2.50	3.30	4.40	5.90	9.25
" " Plated Trimmings	Male or	2.35	2.75	3.60	4.70	6.25	9.75
" " Plated over all .	Female	2.50	2.90	3.75	5.00	6.50	10.00
Finished all over	Unions	3.00	3.40	4.25	5.75	7.75	12.00
" and Plated a'l over .	j	3.35	3.80	4.70	6.35	8.35	12.75
For Finished Brass Wheel, inste	ad of Wood						
Wheel	. Add	1.00	1.00	1.00	1.25	1.25	1.25
For Finished and Plated Brass	Wheel, in-						
stead of Wood Wheel	. Add	1.25	1.25	1.25	1.50	1.50	1.50

BRASS VALVES, WITH JENKINS DISC.



GLOBE. Fig. 1344.



Fig. 1345.



снеск. Fig. 1346.

Size, 1	nches.		4	8	5	4	1	$1\frac{1}{4}$	15	2	$2\frac{1}{2}$	3
Globe	Valves,	, Each	\$1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Angle	6.6	4.6	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Check		٤.	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	20.50

BRASS VALVES WITH FRINK DISC.

Size, inches	$\frac{1}{4}$	3/8	1 2	3	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe Valves, Each	\$0.80	1.00	1,25	1.75	2.50	3.35	4.60	7 00	14.00	20.00
Angle " "	.80	1.00	1.25	1.75	2.50	3.35	4.60	7.00	14.00	20.00

STANDARD BRASS VALVES.

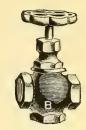


GLOBE. Fig. 1347.

Cross



ANGLE. Fig. 1348.



cross. Fig. 1349.

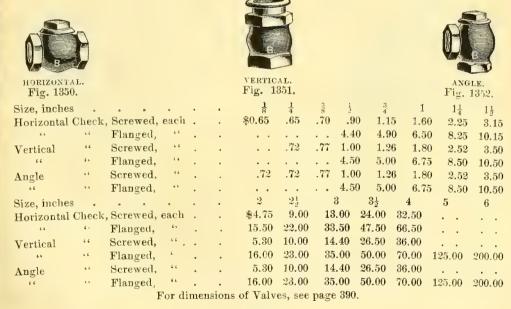
SCREWED,														
Size, inches $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$														
Globe Valves, each	١.		\$0.72	.72	.77	1.00	1.26	1.80	2.52					
Angle " "			.72	.72	.77	1.00	1.26	1.80	2 52					
Cross " "				1.25	1.25	1.50	2.00	2.50	3.50					
Size, inches			13	2	$2\frac{1}{3}$;	3	31	4					
Globe Valves, eacl	ι.		\$3.50	5,30	10.00	14	.40	26.50	36.00					
Angle " "			3.50	5.30	10.00	14	.40	26.50	36.00					
Cross " "			5.00	8.00	16.00	24	.00	45.00	60 00					
				FLANC	ED.									
Size, inches .			1 3	$\frac{3}{4}$	1	11		$1\frac{1}{2}$	2					
Globe Valves, each			\$4.50	5.00	6.75	8.	50	10.50	16.00					
Angle " "			4.50	5 00	6.75	8.3	50	10.50	16.00					
Cross " "			5.25	7.00	9.00	12.	00	15.75	22.00					
Size, inches .			$2\frac{1}{5}$	3	$3\frac{1}{2}$	4		5	6					
Globe Valves, each			\$23.00	35.00	50.00	70.	00	125.00	200,00					
Angle " "			23.00	35.00	50.00	70.6	00	125.00	200.70					

STANDARD BRASS CHECK VALVES.

75.00

100.00

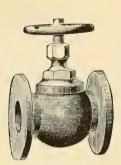
45.00



STANDARD EXTRA HEAVY BRASS CLOBE AND ANGLE VALVES.

Size, inches	$\frac{1}{4}$	3/8	1/2	3 4	1	$1_{\frac{1}{4}}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	35	4
Globe Valves, screwed, each.	1.25	1.45	1.85	2.50	3.50	5.25	7.00	10.50	20.00	27.00	50.00	65.00
" flanged, " Angle Valves, screwed, "	1.25	1.45	$\frac{1.85}{1.85}$	2.50	3.50	5.25	7.00	10.50	20.00	27.00	50.00	$120.00 \\ 65.00$
" flanged," "		[9.50	13.50	16.50	24.00	45.00	65.00	95.00	120.00

STANDARD IRON-BODY VALVES. BRASS MOUNTED, FLANGED.



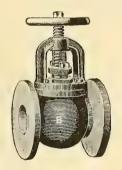
GLOBE. Fig. 1353.



ANGLE. Fig. 1354.

		flanged,			$\frac{1}{\$3,25}$	$\frac{14}{4}$ 3.85	$\frac{1\frac{1}{2}}{4.80}$	$\frac{2}{7.00}$	2	3 12,50
OTODO	Author,	папасы,	Chicii	•	ψo . $\sim o$	0.00	T 00	1.00		
Angle	6.6	6.6	6 6		3,25	3.85	4.80	. 7.00	9.00	12.50
Cross	66	66	6 6			Q #		9.00	11.75	16.50

WITH YOKE, FLANGED.



GLOBE. Fig. 1355.



ANGLE. Fig. 1356.

Size, i	nches			2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	41	5
Globe	Valves,	flanged,	each	\$8,60	10.75	15.00	18 50	22.50	27.50	31.00
Angle	6.6	66 ,		8.60	10.75	15.00	18.50	22.50	27.50	31.00
Cross	6.6	66	66	11.00	14.50	20.00	25.00	28.50	36.00	41.00
							10	12	14	16
Globe	Valves,	flanged,	each	\$42.00	68.00	77.00	123.00	187.00	350.00	475.00
Angle	6.6	4.6	6.6	42.00	68.00	77.00	123.00	187.00	350.00	475.00
Cross	66	4.6	6.6	54.00	85.00	100.00	175.00	265.00		

For dimensions of Flanged Globe, Angle and Cross Valves, see page 391.

STANDARD IRON-BODY VALVES.

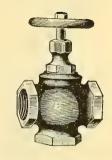
BRASS MOUNTED, SCREWED.



GLOBE. Fig. 1357.



Fig. 1358.



CROSS. Fig. 1359.

Size, i	nches		•
Globe	Valves,	ϵ ach	
Angle	66	4.6	
Cross	66	6.6	

1	1 <u>1</u>	$1\frac{1}{2}$
\$2.25	2.75	3,50
2.25	2.75	3.50

2 21 3 5.40 7.35 9.80 5.40 7.35 9.80 6.50 12.50 9.00

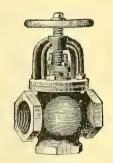
WITH YOKE-SCREWED.



GLOBE. Fig. 1960



ANGLE.



CROSS.

g. 1360.					Fig. 1	1361.			Fig. 1	362.
nches			6		2	χ_2^1	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Valves,	each				\$7.00	9.00	12,50	15.25	19.00	24.00
6.6	6.6				7.00	9.00	12.50	15.25	19.00	24.00
4.6	66				8.50	11.75	16.25	20.00	23,50	30.65
inches				,	5	6	7	8	10	12
Valves,	each				\$27.00	37,50	63.00	72.00	114.00	170.00
66	66	٠			27.00	37.50	63 00	72 00	114.00	170 00
	6.6				35.25	47.25	78.00	92.00	162.00	240.00
	nches Valves, inches Valves,	valves, each inches Valves, each inches Valves, each	valves, each . '' '' '' '' '' '' '' '' '' '' '' '' '	valves, each	valves, each	nches 2 Valves, each \$7.00 """ 7.00 """ 8.50 inches 5 Valves, each \$27.00 """ 27.00	nches . . 2 $\frac{1}{2}$ Valves, each . \$7.00 9.00 . . . 7.00 9.00 . . 8.50 11.75 inches . . 5 6 valves, each . \$27.00 37.50 </th <th>nches . . . 2 $2\frac{1}{2}$ 3 Valves, each . <</th> <th>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</th> <th>nches</th>	nches . . . 2 $2\frac{1}{2}$ 3 Valves, each . <	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	nches

For dimensions of Valves see page 390.

JENKINS BROS. GLOBE, ANGLE AND CROSS VALVES.







Fig. 1364.



Fig. 1365.

Size				18	$\frac{1}{4}$	3/8	$\frac{1}{2}$	$\frac{3}{4}$	1 ·	14	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Brass Globe and Angle Valves, s	crewed			\$1,10	1,10	1.25	1.60	2.20	2.80	4.00	5.50	8.00	15.75	22.00
ee ee to te f	langed								6.00	9,00	11 00	16 59	25 00	34.00
Brass Cross Valves, screwed					1.70	2.0)	2.25	2.50	3.25	4.75	6.25	9 50	20.00	27.50
" flanged									8.64	11.45	15, .0	22.70	32.82	44.30
Brass Hose End Globe and Ang	gle Valve	S							3.30	4 70	6.50	9.15	17.10	2 1 35

JENKINS BROS. CLOBE AND ANGLE VALVES.

IRON BODY, COMPOSITION MOUNTED.



Fig. 1366.



Fig. 1367.

Size						4	1	14	13	2	$z_{\frac{1}{2}}$	3	33	4	$4\frac{1}{2}$	9	6	7	8	10	12
Brass	Hub,	screw	αd			\$2.75	2.85	3.85	5.00	7.25	11.00	16.60									
•	, 4	flang	ed							8.50	13.00	18.00									
With	Yoke	screw	ed			٠				10.00	12.00	16.75	19.50	$24\ 00$	32.00	40,00 4	8.00	80.00	90.00	$130\ 00$	185 00
•		flang	ed		٠					11.75	14.00	18 50	21.50	26.00	34.00	42.00 5	03.0	80.00	90.00	130.00	185.€0
Cross	Valve	es, scre	ewed								16.06	21.00	26.00	30.00	42,00	45.00 5	8.00				
•		flan	ged						• •		19.00	21 00	29.00	33,00	45.00	48.00 €	2.00				
Size																14	1	6	18	20	24
Globe and Angle Valves, with Yoke, flanged													1222.00								

For Dimensions of Flanged Globe, Angle and Cross Valves, see page 396.

JENKINS BROS. CATE VALVES.

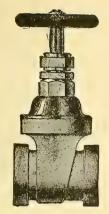


Fig. 1366.



Fig. 1369.



Fig. 1370.

Brass Gate Valve, Stationary Brass Hose Gate Valve. SPINDLE SCREWED.

IRON BODY GATE, COMPOSITION MOUNTED, FLANGED.

Size			1/2	$\frac{3}{4}$	1	$1\frac{1}{1}$	1 1	2	$2\frac{1}{2}$	3
Brass Gate Valves, screwed										
" " flanged .			3.50	4.50	6.00	7.50	10.00	14.00	21.00	28.00
Brass Hose Gate Valves .										
Hose Caps, rough, without c	hain or	swive		.60	.75	1.15	1.50	2.00	2.50	
" " finished, with ch	ain .			1.00	1.25	1.75	2.25	3.00	3.50	

IRON BODY, COMPOSITION MOUNTED,

Size								22	21.2	3	31g	4	4^{1} 2	5	6	ĩ	8	10	12
Gate	Valves	s, scre	wed					\$8.00	12.00	15.00	19,10	21.00	29.00	30.00	35.00	50.00	62.00	85.00	1.000
	4.6	flang	ed					9.00	13.00	16.00	19.00	22.50	31.00	$32\ 00$	38.00	50.00	62.00	85.00	120 0 +
Hub	or Spi	got Ga	te Va	lves				9.00	12.00	15.00	18.00	21.00	29.00	30.00	36,00	50.00	$62\ 00$	85.00	120 (0
Diam	of fla	nges-	-Gate	Valve	S			6	7	$7\frac{1}{2}$	816	9	9_{-4}	10	11	121/2	13½	16	19
Face	to fac	e-Gat	te Val.	. BC. a1	nd fla	inge	d	6	714	798	758	838	878	91/2	10	11	1254	1 34	14%
	For sizes above 12 inches we furnish net prices																		

JENKINS ALL IRON CATE VALVES.

FOR AMMONIA, ACIDS, ETC.

Size	5	$\frac{1}{2}$	3 4	1	$1\frac{1}{4}$	1 }	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Screwed		\$3.25	3.25	3.75	4.50	5.25	8.25	10.00	12.25	15.00	18.25
Flanged							10.25	11.59	13.75	16.50	20.50

JENKINS BROS. ALL IRON CLOBE AND ANGLE VALVES.

FOR AMMONIA, ACIDS, ETC.

Size .		$\frac{1}{2}$	3 4	1	1 1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed		\$3.25	3.50	3.75	4.00	4.25	5.25	11.00	13.25
Flanged		4.10	4.25	4.50	4.75	5.25	6.50	12.50	14.50
Size			3}	4	$4\frac{1}{2}$	5	6	7	8
Screwed			15.50	17.50	25.75	27.00	33.25	43 25	52.00
Flanged			16.75	19.25	27 50	29.00	35.50	46.25	56.25

Please note that the discs used in these valves are warranted to stand ammonia. No regrinding, as it is not metal against metal.

For dimensions of Valves, see page 390.

IRON BODY, COMPOSITION MOUNTED DOUBLE CATE VALVES.



These Valves are operated by a two-inch square nut on spindle, unless otherwise ordered. The bodies, caps, nuts, stuffing boxes and glands are made of cast iron; the gates are also cast-iron, faced with composition. The seats are of composition, firmly held to the body according to the most approved practice. The stems are large and strong, to prevent twisting, and of solid gun-metal composition, and are all interchangeable.

These Valves are specially constructed for street mains, and are extra strong, to withstand rough usage.

Fi	O١.	1	3	7	1

rig. 1011.												
Diameter of opening, inches	2	3	4	5	6 8	10	12	14	16	18	20	24
End to end of pipe when laid	9	91	1	E .	5 5	1 6	c 3	77 1	ו ליו	01	03	0.1
in bell	- 0	\mathfrak{d}_{4}	4	9 1	9 9	4 0	04	14	13	03	04	93
Diameter of bell socket .	3 3 <u>1</u> 8	45	$5\frac{3}{4}$	67 '	$\frac{5}{7\frac{7}{8}} = \frac{5}{10}$	12	14‡	$16\frac{1}{4}$	183	$-20\pm$	-223	26^{3}
	69	0	4	5	0		-1	'±	- 2		- 4	
			Pric	e List	r.							
			2 1010									
Diameter of opening, inches	2	3	4	5	6	8	10	12	14	16	18 20	94
Bell or spigot end	\$10.00	19.00	20.00	25.00	50.00	55.00	70.00	95.00				

COMPOSITION WEDGE GATE VALVES WITH SOLID BRONZE SEATS.

STATIONARY OR RISING SPINDLES. FOR STEAM AND WATER.

These Valves have a straightway passage the full diameter of connecting pipes.

Diameter of opening, in	aches			38	1.2	3 4	1
Face to face, screw end	ls .			2^{-3}_{16}	$2\frac{3}{8}$	2^{3}_{4}	38
Face to face, flange en	ds .			$2\frac{1}{2}$	$2\frac{9}{i\delta}$	3	3.5
Diameter of flanges .				$2\frac{1}{2}$	3	3	4
Screw ends, each .		,	,	\$1.20	1.30	1.75	2.25
Flange ends " .				2.25	2.50	3.00	4.00

Frange ends	**				2.25	2.50	3.00	4.00
Fig. 1372.								
Diameter of opening, inches		$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{3}$	4
Face to face, screw ends .		$3_{1.6}^{1.1}$	4	$4\frac{3}{4}$	5_{2}^{1}	$6\frac{1}{2}$	8^{1}_{4}	83
Face to face, flange ends .		315	$4\frac{5}{16}$	$5\frac{1}{4}$	$5\frac{3}{4}$	7	$8\frac{1}{4}$	87
Diameter of flanges		4\frac{1}{2}	5	6	7	7	81/3	9
Screw ends, each		\$ 3.25	4.25	6.25	11.50	16.00	30.00	38,00
Flange ends, "		5.00	7.50	10.00	16.00	20.00	39.00	46.00

CLOBE, ANGLE AND CROSS VALVES FOR HIGH STEAM PRESSURE.



Fig. 1373.

WITH IMPROVED COMPOSITION DISC.

	Diam. or openin	g,									
	inches .	· 1	3 8	$\frac{1}{2}$	$\frac{3}{4}$	1	$1_{\frac{1}{2}}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
	Globe and Angl	e,									
	screw ends	\$1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.00	15.75	22.00
	Globe and Angl	e,									
'	flange ends					6.00	9.00	11.00	16.50	25.00	34~00
1	Cross Valves	*									
	screw ends	1.70	2.00	2.25	2.50	3.25	4.75	6.25	9.50	20.00	27.50
	Discs for Valve	s.04	.05	.06	.07	.08	.12	.16	.24	.32	.40

.32

.40

COMPOSITION STANDARD WEDGE CATE VALVES.

WITH EITHER SCREW OR FLANCE ENDS. FOR STEAM 'R WATER.

Either Stationary or Rising Spindles, as ordered.

The gates or plugs of these Valves are constructed of one piece, guided in the body by ribs or splines, which take the strain, thus preventing contact till scated. These gates can easily be renewed should it become necessary, at a slight expense all parts being interchangeable. Either end can be used for inlet or outlet.

Diameter of opening, inches	1.2	3 4	1	1_{4}^{1}	1를	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Face to face, screw ends .	$2\frac{1}{4}$	$2\frac{5}{8}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$4^{\frac{1}{4}}$	$4\frac{3}{4}$	$4\frac{7}{8}$	5^{3}_{1}	6	-77	
Face to face, flange ends .		3	3	3_{2}^{1}	4	$4\frac{3}{4}$	$5\frac{1}{2}$	6	$6\frac{1}{1}$	7	8	9
Diameter of flanges	3	3	4	41	5	6	6	7	73	9	10	11

STATIONARY SPINDLE. Fig. 1374.

PRICE LIST.

Diam. of open	ing,	inche	S 3	2	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3^{\frac{5}{2}}$	4	5	6
Screw ends			\$1.40	1.40	1.80	2.50	3.50	5.00	-7.50	14.00	20.00	32.00	40.00	55.00	78.00
Flange ends			2.50	2.75	3.50	4.50	5.50	7.50	12.00	18.00	25.00	40.00	48.00	66.00	94.00

IRON BODY COMPOSITION MOUNTED DOUBLE CATE VALVES.

Steam and Water Valves to bear heavy pressure either side of gate. The bodies, caps and wheels of these Valves are made of cast-iron and composit on stuffing boxes and spindles. The gates are also of cast-iron, faced with best composition metal.

BOLTED TOP.

	Diameter of opening, inch	es	11/2	2	$2\frac{1}{2}$	3	31	4	$4\frac{1}{2}$	5	6
	Face to face, screw ends		4	5	6	$6\frac{1}{1}$	$-6\frac{3}{4}$	7	$7\frac{5}{8}$	- 8	- 8§
	Face to face, flange ends		$5\frac{1}{4}$	6	$6\frac{1}{8}$	73	\tilde{I}_{2}^{1}	$S^1_{ar{1}}$	$-8\frac{1}{2}$	$9\frac{1}{8}$	93
į	Diameter of flanges .		5	6	jer j	8	$-8\frac{1}{2}$	9	$9\frac{1}{2}$	10	11

Fig. 1375.

TAN A. TO LA L. TAN TAN LONG

Diameter of opening, inches		7	8	9	10	12	1 ‡	16	18	20	24
Face to face, screw ends .					$11\frac{1}{2}$						
Face to face, flange ends .					$12\frac{1}{4}$						
Diameter of flanges		12	13	15	16	18	21	23	25	27	31

PRICE LIST.

Diameter of open-	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	4 1	ō	6	77	S	9	10	12
ing, inches. Screw ends	\$10.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	43.00	53.00	60.00	70.00	95.00
Flange ends .	10.00	12.50	15.50	19.00	21.00	24.00	27.00	32.00	43.00	53.00	60.00	70.00	95.00

WITH SLIDING STEM AND LEVER.

Diam. of opening	incl	nes 21	3	0 L	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
screw ends .		\$16.00	20.00	22.00	25.00	28.00	30.00	35.00	48.00	58.00	65.00	70.00	100.00
Flange ends .		16.00	20.00	22.50	25.00	28.50	32,00	37.00	48.00	58,00	65,00	75.00	100.00

Prices on all size Valves from 12 to 48 inches given on application.

DIMENSIONS OF JENKINS BROS. VALVES.

IRON BODY VALVES.

Size, inches	3		2	$2\frac{1}{2}$	3	3 }	4	41	5	6	7	8	9	10	12
A (Screwe Flange	d		$6\frac{1}{2}$	8	$9\frac{3}{8}$	10	$11\frac{7}{8}$	13	$13\frac{1}{4}$	16	$16\frac{1}{2}$	$18\frac{5}{8}$	$20\frac{1}{4}$	$21\frac{1}{2}$	25_{4}^{3}
Flange	d		7	$7\frac{1}{2}$	$9\frac{1}{4}$	10	$11\frac{3}{4}$	$12\frac{1}{2}$	13	16	16	$18\frac{1}{2}$	20	$21\frac{1}{4}$	24.
B {Screwe Flange	d		$3\frac{1}{4}$	$3\frac{7}{8}$	411	5	-5_{16}^{15}	$-6\frac{3}{1.6}$	$6rac{5}{8}$	8	$8\frac{1}{4}$	$9\frac{3}{8}$	10	$10^{\frac{3}{4}}$	$12\frac{7}{8}$
Flange	d		3_8^7	41	45	53	$-5\frac{7}{8}$	$6\frac{1}{4}$	$6\frac{1}{2}$	-8	8	$9\frac{1}{4}$	10	$10\frac{5}{8}$	124
С															
D			$\frac{3}{4}$	13 16	$\frac{7}{8}$	1.5 1.6	1	1,1	$1\frac{1}{8}$	1_{18}^{3}	$1\frac{1}{4}$	$1_{\frac{5}{1}}$	$1\frac{3}{8}$	1 77 ह	1_{78}^{9}
E			$8\frac{7}{8}$	$10\frac{1}{2}$	$12\frac{1}{8}$	13	$14\frac{7}{8}$	$15\frac{1}{4}$	$16\frac{5}{8}$	$17\frac{5}{8}$	$20\frac{1}{4}$	$21\frac{5}{8}$	$22\frac{1}{2}$	$24\frac{1}{2}$	$30\frac{1}{2}$

BRASS VALVES.

Size, inches			1/2	$\frac{3}{4}$ 1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$\frac{2}{2}$	3	$3\frac{1}{2}$	4	41	5	6
A Screwe Flange	d .		$\frac{93}{24}$	3_{16}^{5} 3_{16}^{15}	$\frac{4\frac{1}{1}}{4\frac{3}{1}}$	413	$\tilde{5}^{3}_{15}$	$\frac{65}{8}$	81	10	$11\frac{7}{8}$	13	$13\frac{1}{4}$	16
(Flange	1 .		016	016 4	48	45	016	016	16	10	T13	125	13	16
Screwe	d .		$1\frac{3}{8}$	$1\frac{1}{2}$ $1\frac{1}{16}$	$2\frac{1}{16}$	$2\frac{1}{1}$	213	$3\frac{1}{4}$	$4\frac{1}{1}$	5	-5^{15}_{16}	$6^{-3}_{7.6}$	$6\frac{5}{8}$	- 8
B {Screwe Flanged	1 .		$2\frac{1}{16}$	$2\frac{3}{8}$ $2\frac{5}{8}$	215	3 3	33	4	-4_{16}^{-6}	$5\frac{3}{8}$	$5\frac{7}{8}$	$-6\frac{1}{4}$	$-6\frac{1}{2}$	8
С			3	$3\frac{1}{2}$ 4	$4\frac{1}{2}$	5	6	$6\frac{1}{2}$	73	81	9	$9\frac{1}{4}$	10	11
D														
E		,	$4\frac{5}{8}$	$4\frac{5}{8}$ $5\frac{1}{2}$	$6\frac{7}{8}$	7	$8\frac{5}{8}$	$9\frac{1}{8}$	$9\frac{7}{8}$	13	$14\frac{7}{8}$	$15\frac{1}{1}$	$16\frac{5}{8}$	$17\frac{5}{8}$

A—Face to Face, Globe and Check. B—Centre to Face, Angle and Check. C—Diameter of Flanges. D—Thickness of Flanges. E—Height when open—Centre of pipe to top of handwheel.

DIMENSIONS OF STANDARD IRON BODY GLOBE VALVES.

Size, inches		2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$ 5	6	7	8	10	12
Diameter of Flanges, inches		6	7	71	$8\frac{1}{2}$	9	$9\frac{1}{4}$ 10	11	$12\frac{1}{2}$	$13\frac{1}{2}$	16	19
Distance Face to Face, "		$5\frac{5}{8}$	73	73	93	11	11 12	$13\frac{1}{2}$	16	16	$19\frac{1}{5}$	221

DIMENSIONS OF STANDARD IRON BODY ANGLE VALVES.

Size, inches		2	21	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Diameter of Flanges, inches		6	77	$\frac{n}{4}\frac{1}{2}$	$8\frac{1}{2}$	9	$9\frac{1}{4}$	10	11	$12\frac{1}{2}$	$13\frac{1}{2}$	16	19
Distance Centre to Face, "		37	41	45	53	53	53	63	71	73	81	91	11

DIMENSIONS OF STANDARD IRON BODY CROSS VALVES.

Size, inches		2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	8
Diameter of Flanges, inches .		6	7	$7\frac{1}{2}$	$8\frac{1}{2}$	9	$9\frac{1}{4}$	10	11	134
Distance Face to Face, " .		$5\frac{5}{8}$	78	78	$9\frac{3}{8}$	11	11	12	$13\frac{1}{2}$	16
Distance Centre to Inlet, inches	٠	$3\frac{7}{8}$	$4\frac{1}{2}$	$4\frac{5}{8}$	$5\frac{3}{8}$	$5\frac{7}{8}$	$5\frac{7}{8}$	$6\frac{3}{8}$	7 1 8	$8\frac{1}{4}$

DIMENSIONS OF STANDARD IRON BODY CHECK VALVES.

Size, ir ches		2	$\frac{21}{2}$	3	31	4	$4\frac{1}{2}$	5	6	14	8	10	12
Diameter of Flanges, inches .		6	7	73	$8^{\mathfrak{t}}_{\bar{2}}$	9	$9\frac{1}{4}$	10	11	$12\frac{1}{2}$	$13\frac{1}{2}$	16	19
Distance Face to Face of Hori-) zontal or Vertical, inches													
Distance Centre to Face \(\) of Angle, inches		378	4 }	45	$5\frac{3}{8}$	53	5 ° 8	$6\frac{3}{8}$	78	7^{3}_{4}	$8\frac{1}{4}$	91/2	11

STANDARD IRON-BODY CHECK VALVES.

BRASS MOUNTED.







HORIZONTAL.				ANG	LE.				VERTIC	A.Y.,
Fig. 1376.				Fig.	1377.				Fig. 1a	
				SCREV	VED.					
Size, inches .			1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	24	3	$3\frac{1}{5}$	4
Horizontal, each			\$1.50	2.20	2.65	3.60	6.50	8.90	$12.\overline{2}5$	14.25
Angle,			1 50	2.20	2.65	3.60	6.50	8.90	12.25	14.25
Vertical "	•					7.00	9.50	12.50	17.00	21.00
Size, inches .				4.	5	6	7	8	10	12
Horizontal, each				\$19.00	22.00	30.00	45.00	57.00	105.00	155.00
Angle, "				19.00	22.00	30.00	45.00	57.00	105.00	155.00
Vertical, "				30.00	33.00	40.00	62.00	73.00		
				FLANC	ED.					
Size, inches .		1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	24	3	33	4	$4\frac{1}{5}$
Horizontal, each		\$2.50	3.25	4.00	5.25	8.25	11.50	15.50	18.00	22,50
Angle, "		2.50	3.25	4.00	5.25	8.25	11.50	15.50	18.00	22.50
Vertical, "					8.75	11.50	15.00	20.00	25.00	33.50
Size, inches .			5	6	7	8	10	12	14	16
Horizontal, each			\$26.00	35.00	50.00	62.00	115.00	175.00	300.00	425.00
Angle, "			26.00	35.00	50.00	62.00	115.00	175.00		
Vertical,			37.00	45.00	67.00	78.00				

JENKINS BROS. CHECK VALVES.





				F	ig. 1380)	
D. HO	RIZO	NTAL	IRO	N B	ODY	FLAN	CED.
15	3 4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
0 1.30	1.90	2.60	3.60	5.00	7.50	13.50	20.50
	$2\frac{1}{2}$	3		$3\frac{1}{2}$	4	5	6
tical,							
	12.50						43.00
	1 1.30	$ \frac{1}{2} $ $ \frac{3}{4} $ 0 1.30 1.90 4.75 $2\frac{1}{2}$ \$10.50	$\frac{1}{2}$ $\frac{3}{4}$ 1 0 1.30 1.90 2.60 4.75 5.50 $2\frac{1}{2}$ 3 tical, tical, 12.50 16.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	D. HORIZONTAL IRON BO $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 0 1.30 1.90 2.60 3.60 5.00 4.75 5.50 7.80 9.80 $2\frac{1}{2}$ 3 $3\frac{1}{2}$ tical, tical, 12.50 16.50 20.00	D. HORIZONTAL IRON BODY $\frac{1}{2} \frac{3}{4} 1 1\frac{1}{4} 1\frac{1}{2} 2$ $0 1.30 1.90 2.60 3.60 5.00 7.50$ $. 4.75 5.50 7.80 9.80 15.00$ $. 2\frac{1}{2} 3 3\frac{1}{2} 4$ tical, $ \text{tical}, \text{tical}, 12.50 16.50 20.00 25.00$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

For dimensions of Flanged Check Valves see page 390.

SAFETY VALVES.

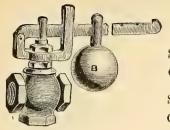


Fig. 1381.

BRASS.

Size, Inches,	$\frac{1}{4}$	<u>3</u>	$\frac{1}{2}$	$\frac{3}{4}$	1
Globe or Angle .	\$2.20	2.50	3.25	3.90	4.70
Size, . Inches,	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe or Angle .	\$7.15	9.00	12.50	$22 \ 50$	33,50

IRON BODY SAFETY VALVES.

Size,	Inches,	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe or Angle, Screwed,	Each,	\$3.50	4.00	5.00	5.80	7.80	13.25	17.25
Globe or Angle, Flanged,	66		5.50	6.75	7.75	10 25	16,00	21.50
Size,	Inches,	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Size,							7 93,50	

IRON BODY BACK-PRESSURE VALVES.

Size, .	•	Inches,	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Screwed,		Each,	\$9.00	11.00	13.00	15.00	19.00	22.50	28.50	33.50
Flanged,		66	10.50	12.75	15.00	17,50	22.00	26,00	32 00	37.00
Size, .		Inches,	6	7	8	10	12	14	16	
Screwed,		Thoob	Ø49 00	70.00	SK 00	190.00	180.00			
ocrewed,		macц,	\$45.00	10.00	00,00	120.00	100.00			

DAVIS NOISELESS BACK-PRESSURE VALVES.

Size, .			Inches,	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7
Screwed,			Each,	\$14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00
Flanged,			4.6	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00
Diam. of Fla	anges	3 .	Inches,			$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	10	11	13
Size, .			Inches,	8	10	12	14	16	18	20	22	24
Flanged,			Each,	\$100.00	145.00	220.00	345.00	465.00	600.00	750.00	900.00	1050.00
Diam. of Fla	inges	, .	Inches,	14	17	19	20	23	25	27	29	32

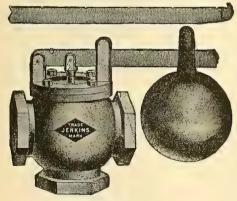


Fig. 1382.

JENKINS BROS. SAFETY VALVES.

Size Brass se			3/2 \$4.1:			1¼ 8.25	1½ 10.15	2 15.40
Size Iron Body	se.		% \$4.25	-	* **	1½ 7.25		-
Size Iron Body	se.		3 \$22.00		4 38,00	4½ 46.50	5 55.00	6 73.00
Size Iron Body	fl' _c				2 12,25	2½ 19.00		
Size Iron Body		'd,			$\frac{4}{41.50}$			6 80 00
Size . Diam of f			~		16 4 19 9	43 ₉ 91 ₄	5 10	6 11

BRASS STEAM COCKS.





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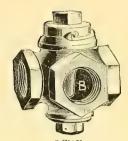
VOTET ATEST

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T HANGLE. Fig. 1384.



3-WAY. Fig. 1385.

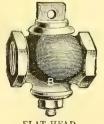
Size,			Inches,		18	1/4	3	$\frac{1}{2}$	3	1	1 1
		(Square Head, .)				0	-	4		1
Steam	Cocks	s, < Flat Head, .	Each,		\$0.85	.85	1.00	1.25	1.70	2.35	3.70
		(Tee Handle, .)								
4.6		with Check,	. ""		1.00	1.00	1.15	1.40	1.90	2.55	3.95
4.4	4.6	Male and Female,			1.35	-1.35	1.45	2.00	2.50	3.00	5 35
4.6	4.6	3-Way,	. 4.6					2.50	3.00	3.75	5.75
	6.6	Flanged						4.75	5.50	7.30	9.70
4.6	4.4	3-Way, Flanged, .						7.75	8.75	11.25	14.75
6.6	+ 6	Extra Heavy, Screwed			-1.30	1.30	1.50	-2.00	2.85	4.00	6.75
4.4	4.6	Extra Heavy, Flanged	,					6.50	7.75	10.00	14.25
Size,			Inches,	$1\frac{1}{2}$	2	25	3	$3\frac{1}{2}$	4	5	6
Size,)	-		_		and .	_	5	6
Size, Steam	Cocks		Inches, Each,	-		_		and .	_	5	6
Steam	Cocks	Square Head, Flat Head, Tee Handle,)	\$4.85	7.30	14.50	22.50	38.50	_	5	6
Steam	Cocks	Square Head,	Each,	\$4.85 5.15	7.30 7.65	14.50 15.00	22.50 23.25	38.50	_	5	6
Steam	Cocks	Square Head, Flat Head, Tee Handle, with Check, Male and Female,	Each,	\$4.85 5.15 6.75	7.30 7.65 9.85	14.50 15.00 17.50	22.50 23.25 25.75	38.50	50.00	5	6
Steam	Cocks	Square Head, Flat Head, Tee Handle, with Check, Male and Female,	Each,	\$4.85 5.15 6.75 7.15	7.30 7.65 9.85 11.00	14.50 15.00 17.50 18.75	22.50 23.25 25.75 26.00	38.50	50.00		
Steam	Cocks	Square Head, Flat Head, Tee Handle, with Check,	Each,	\$4.85 5.15 6.75 7.15	7.30 7.65 9.85 11.00	14.50 15.00 17.50 18.75	22.50 23.25 25.75 26.00	38.50	50.00		
Steam	Cocks	Square Head,	Each,	\$4.85 5.15 6.75 7.15 11.75	7.30 7.65 9.85 11.00 18.00	14.50 15.00 17.50 18.75 27.50	22.50 23.25 25.75 26.00 43.00	38.50 50.00 62.00	50.00	150.00	
Steam	Cocks	Square Head, Flat Head, Tee Handle, with Check, Male and Female, 3-Way, Flanged,	Each,	\$4.85 5.15 6.75 7.15 11.75 17.75	7.30 7.65 9.85 11.00 18.00 27.00	14.50 15.00 17.50 18.75 27.50	22.50 23.25 25.75 26.00 43.00 57.00	38.50 50.00 62.00 85.00	50.00 70.00 84.00	150.00	275.00
Steam	Cocks	Square Head, Flat Head, Tee Handle, with Check, Male and Female, 3-Way, Flanged, 3-Way Flanged,	Each,	\$4.85 5.15 6.75 7.15 11.75 17.75 8.50	7.30 7.65 9.85 11.00 18.00 27.00 13.50	14.50 15.00 17.50 18.75 27.50 38.25 25.00	22.50 23.25 25.75 26.00 43.00 57.00 37.00	38.50 50.00 62.00 85.00 54.00	50.00 70.00 84.00 121.00	150.00	275.00

BRASS STEAM COCKS.

WITH LONG IRON HANDLE.

Size.		٥	a		Inches, . Each.	1/2	3.	1	$1\frac{1}{4}$	13	2
Price					. Each.	\$1.35	1.85	2.60	4.10	5.25	7.80

BRASS SERVICE COCKS.



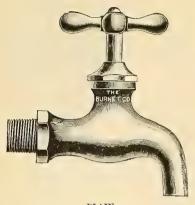
FLAT HEAD. Fig. 1386.



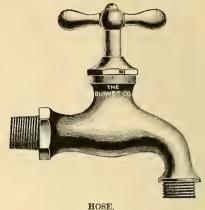
T HANDLE. Fig. 1387.

Size,	Inches,	18	1	3 8	2	$\frac{3}{4}$	1	$1\frac{1}{1}$	$1\frac{1}{2}$	2	25	3
Size, Gas, Service, Cocks, Square Head, Flat Head, Tee Handle,	Each,	\$0.75	.75	.85	.95	1.15	1 50	2.25	3.10	5.00	11.00	16.00
Cocks, (Tee Handle, Gas Cocks, Extra Heav	y, "		.85	.95	1.05	1.30	1.70	2.60	3.60	6.50	12.00	18:00

COMPRESSION BIBBS SCREWED FOR IRON PIPE. FINISHED.



PLAIN. Fig. 1388.



HOSE. Fig. 1389.

PLAIN.

Size,		Inches,	38	$\frac{1}{2}$	58	34	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
For Iron Pipe,		Per doz.,	\$13.00	13 00	15.00	20.00	37.00	5 6.00	86.00	170.00
For Lead Pipe,	•	66 66	10.00	11.00	13.00	18.00	34 00	52.00	80.00	160.00

HOSE.

Size,	Inches,	3 8	$\frac{1}{2}$	<u>5</u> 8	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
For Iron Pipe,	Per doz.,	\$14 00	15 ± 0	17.00	22 00	40.00	60.00	92.00	180.00
For Lead Pipe,		12 00	$13\ 00$	15.00	20.00	37.00	56.00	86.00	170.00

SELF-CLOSING PLAIN BIBBS. (TELEGRAPH FAUCETS.)

Telegraph	Handle.	Screw	ed for	Iron	Pipe.
Size, .	Inches,	38	$\frac{1}{2}$	<u>5</u>	3
Finished,					
Nickel-pla	ted, "	18.00	20.50	23.50	30.50

Flange and Thimble. Size, . Inches, $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$

Finished, Per doz, \$22.00 26.00 30.00 42.00 Nickel-plated, " 24.00 28.50 32.50 44.50

COMPRESSION CAUGE COCKS.



WOOD WHEEL WITH STUFFING BOX. Fig. 1390.



WOOD WHEEL WITHOUT STUFFING BOX. Fig. 1391.

Size,	Inches,	<u>3</u> 8	$\frac{1}{2}$	$\frac{3}{4}$	Size,	 Inches,	38	$\frac{1}{2}$	$\frac{3}{4}$
Price,	Each,	\$1.35	1.50	1 70	Price,	Each,	\$1.10	1.20	1 35



Fig. 1392.

LUBRICATORS.

	, DK	433.			
Diameter of Body, inches,	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Pipe Size, " Each	\$2.00	$\frac{3}{8}$ 2.20	$\frac{1}{2}$ 2.40	9 60	2
		2.20	2.40	2, 60	2.90
Diameter of Body, inches,	$\frac{2\frac{1}{4}}{3}$	$\frac{2\frac{1}{2}}{2}$	3	$3\frac{1}{2}$	4
Pipe Size,	. \$3.25	3 7/5	1 75	7.00	10.00
110019	Ψ9.~υ	0 10	3.10	1.00	10.00

Iron Wheel on Valve Stem wil. be furnished when so ordered.

THE "LACKAWANNA" PATENT CREASE CUP.

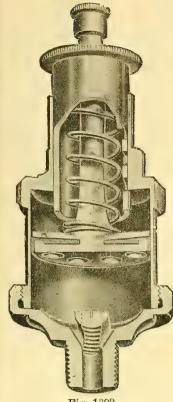


Fig.	1393.
------	-------

PRICE LIST.

Capacity	$\frac{1}{3}$ O	z. 1 Oz.	2 Oz.
Brass,	Each, \$1.2	5 1.85	2.25
Prass, Polished,	" 18	50 2.25	2.75
Size of Shanks, Pipe Th	aread, $\frac{1}{4}$ in	$\frac{3}{8}$ in.	$\frac{1}{2}$ in.
Diameter Through Bore	. 1 <u>‡</u> ir	. 2 in.	$2\frac{1}{2}$ in.
Capacity	40	z. 6 Oz.	8 Oz.
Brass,	Each, \$2.8	0 3.15	3.50
Brass, Polished, .	3.2	5 3.75	4.50
Size of Shanks, Pipe Tl	aread, $\frac{1}{2}$ in	1. $\frac{3}{4}$ in.	$\frac{3}{4}$ in.
Diameter Through Bore	e . 3 in	a. $3\frac{1}{2}$ in.	$3\frac{1}{2}$ in.

Nickel Plating Charged Extra at Cost.

All orders filled with polished cups unless otherwise ordered. Cups can be furnished with blank shanks of any diameter desired without extra charge. An additional charge of 10 per cent, for shanks with special threads—All parts are made to gauge and are thoroughly interchangeable.

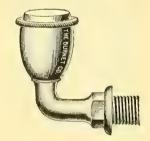
OIL CUPS.



PLAIN. Fig. 1394.



Fig. 1395.

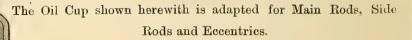


ELBOW SHANK. Fig. 1396.

Diam. of Cup, i	nches,	80	3	7/8	1	$1\frac{1}{8}$	1 1/4	1}	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3
Size Iron Pipe T	hread,	18	<u>1</u>	1 g	1-4	1-4	$\frac{1}{4}$	38	2/0	$\frac{1}{2}$	1.2	$\frac{1}{2}$	3 4	$\frac{3}{4}$
Plain,	Each,	\$0.25	.30	.35	.40	.50	.60	.90	1.25	1.75	2.25	2.75	3.50	4.00
Locomotive				.40	.50		.75	1.00	1.50	2.00				
Elbow Shank,	4+	0 0		1.00	1.40	1.80	2.00	2.80	3.60	4.60				

"THE SAFETY" ROD OIL CUP.

(PATENTED)



The cup is of best bronze, and cast solid with the base is the steel shank, with a square head, as shown in the cut. This steel shank being cast with and forming an integral part of the oil cup, does away with the great source of expense resulting from the loss of nine-tenths of all other rod cups, from the shanks breaking in service, and the cups being thrown off and lost.

It is most economical with oil, having a loose valve that works up and down, similar to a check valve, when the engine is in motion. The lift of valve is regulated by adjusting screw and lock-nut, as c'early shown in cut. Cup is filled without changing the regulation, and when closed is absolutely dust-proof.



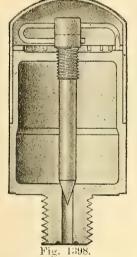
Fig. 1897.

No			1	2
Outside diameter of Cup			$2\frac{7}{16}$ ins.	$2\frac{1}{16}$ ins.
Height of Cup		•	$4\frac{5}{8}$ ins.	$4_{\frac{1}{16}}$ ins.
Capacity	٠		5 ozs.	$2rac{1}{2}$ ozs
Size of Shank, blank .			0	$\frac{7}{8}$ in.
Price, each			\$4 00	3.50

CUIDE AND BEARING OIL CUP.

(PATENTED.)

The cup shown herewith is made of best bronze, extra heavy, strong and nicely finished. The construction and feed is clearly shown in illustration. Fine needle valve adjustment and rim of body notched to receive spring catch, carried on valve-stem, so that the feed may be locked at any desired position.

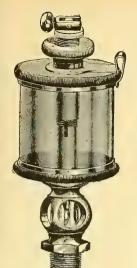


No	3	4
Outside diameter of	Cup $2\frac{1}{4}$ ins.	1_8^7 ins.
Height of Cup .	$4\frac{1}{8}$ ius.	$2\frac{7}{8}$ ins.
Capacity	$4\frac{1}{2}$ ozs.	2 ozs.
Size of Shank, blank	. 1 in.	$\frac{7}{8}$ in.
Price, each	. \$4.00	3.50

WICK OILER.

The tip shown herewith is designed for use, with the Guide Cup illustrated above, for oiling valve-stem or piston rod. A cored passage allows free flow of oil to the wick, and the wick furnishes constant lubrication to the rod or valve-stem. The tip may be secured in position on gland stude through hole just above wick. Price

Fig. 1399



CLASS BODY OIL CUP, WITH QUICK STOP DROP LEVER AND SIGHT FEED.

As a Signal Cup there is none equal to it. They are provided with a reliable and simple attachment whereby the cup may be started or stopped instantly, and the engineer can also tell at a glance whether the cup is feeding or not. They are easily flushed by simply pulling up the lever.

PRICE LIST.

Size.	Capacity.	Diameter of Glass.	Thread. Iron Pipe.	Brass Finished. Each.	Nickel Plated. Each.	Extra Glass. Each.
1	1 ounce.	$1\frac{1}{2}$ inches.	$\frac{1}{4}$ inch	\$2.75	\$3.00	\$0.10
3	11/2 "	$1\frac{3}{4}$ "	<u>3</u> "	3.10	3.40	.10
5	$2\frac{1}{4}$ "	2 "	3 66	3.50	3.90	.12
7	$3\frac{1}{2}$ "	$2\frac{1}{4}$ "	8 44	4.00	4.40	.15
9	$4\frac{1}{2}$ "	$2\frac{1}{2}$ "	$\frac{3}{8}$ "	5.00	5. 50	.25
11	8 "	3 "	$\frac{1}{2}$ "	7.00	7.60	.35
15	1 pint.	$3\frac{1}{2}$ "	$\frac{1}{2}$ "	8.00	8.75	.50
17	$1\frac{1}{2}$ "	$3\frac{1}{2}$ "	3 66	9.00	10.00	.65

Fig. 1400.

CLASS OIL CUPS, WITH STOP LEVER.

Fig. 1401, Glass Oil Cups are constructed the same as Fig. 1404, except they are not provided with a sight feed. These cups are easily and quickly taken apart for cleaning without a wrench, and feed uniformly at all times,

>	D	16	2	F	L	Ŀ	S	т	

Siz	Β.	Capacity.	Diameter of Glass.	Size of Shank Thread. Iron Pipe.	Brass Finished. Each.	Nickel Plated. Each.	Extra Glass. Each.
2	\mathbf{A}	1 oz.	$1\frac{1}{2}$ in.	$\frac{1}{4}$ in.	\$2.20	\$2.45	\$0.10
21	В	11 44	$1\frac{1}{2}$ in. $1\frac{3}{4}$ "	3 44	2.40	2.70	.10
3	\mathbf{C}	21 "	2 "	3 "	2.80	3.20	.12
4	\mathbf{D}	$3\frac{1}{2}$ "	$2\frac{1}{4}$ "	3	3.25	3.65	.15
5	\mathbf{E}	$4\frac{1}{2}$	$2\frac{1}{4}$ " $2\frac{1}{2}$ "	3 66	4.25	4.75	.25
6	\mathbf{F}	8 "	3	1 "	5.80	6.40	.35
$6\frac{1}{2}$	G	1 pt	$3\frac{1}{2}$ "	$\frac{1}{2}$ "	7.00	7.75	.50
7	\mathbf{H}	$1\frac{1}{2}^{-1}$	$3\frac{1}{2}$ "	%	8.00	9.00	.65



Fig. 1401.

CLASS BODY OIL CUP. WITH QUICK STOP DROP LEVER.

Same as our Fig. 1400, except that they are not provided with a sight feed. They are finely finished and give the best satisfaction. The cup can be flushed without disturbing the the feed adjustment and does not become disturbed by jarring.



Size.	Capacity.	Diameter of Glass.	Size of Shank Thread Iron Pipe.	Brass Finished. Each.	Nickel- Plated. Each.	Extra Glass. Each.
2	1 oz.	$1\frac{1}{2}$ in.	$\frac{1}{4}$ in.	\$2.20	\$2.45	\$0.10
4	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "	4 8 44	2.40	2.70	.10
6	21 "	2 "	3 44	2.80	3.20	.12
8	31 4	21/4 "	3 66	3,25	3.65	.15
10	$4\frac{1}{2}$ "	$2\frac{1}{2}$ "	<u>3</u> "	4.25	4.75	.25
12	8 "	3 "	1 "	5.80	6.40	.35
14	1 pt.	31 "	$\frac{1}{2}$ "	7.00	7.75	.50
16	12 "	31 "	3 66	8.00	9.00	.65

Cups are sent regular pipe thred shanks, as per above list, unless otherwise specified.



Fig. 1402.

IMPROVED

AUTOMATIC CRANK-PIN OILER.

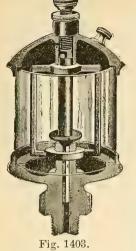
Feeds Oil at every revolution of the Crank.

Stops Feeding when the Engine Stops.

The Feed is adjusted by turning the regulating stem, to which is attached a lock nut to fasten same when properly adjusted.

The construction of this Cup is such that it insures feed on high or low speed engines. When the engine stops the valve drops to the bottom and closes the outlet, stopping the

flow of oil automatically.



PRICE LIST. Size, No. 2 Capacity. 1 oz. 2\frac{1}{2} oz. 4½ oz. S oz. 1 pt. 1\frac{1}{2} pt. Diameter of Glass. 1½ in. 2 in. 24 in. 3 in. 3\frac{1}{2} in. 3\frac{1}{2} in. $\frac{3}{4}$ in. Size of Shank, Iron Pipe, $\frac{1}{4}$ in. 용 in. $\frac{3}{8}$ in. $\frac{1}{2}$ in. 1 in. Brass Finished, Each, \$2.20 4.25 5.80 7.00 8.002.80 Nickeled. Each, 2.45 3.20 4.75 7.75 . . 6.40 9.00 Extra Glasses, Each, .10 .25 .12 .35 .50 .65

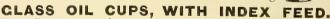
CLASS OIL CUPS, WITH STOP LEVER.

Finest Oil Cups made. Feed can be adjusted to suit with thumb nut, and locked with screw; then can be instantly stopped or started with the lever shown in the cut. These Cups can be readily flushed without interfering with the feed adjustment, and will not become moved or disturbed by jarring. They are made heavy and strong and finely finished.

	Ε		

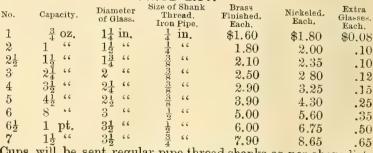
		LUIOF FIG	1.0		
Capacity.	Diameter of Glass.	Size of Shank Thread. Iron Pipe.	Brass Finished. Each.	Nickeled, Each.	Extra Glasses. Each.
1 oz.	$1\frac{1}{2}$ in.	$\frac{1}{4}$ in.	\$2.75	\$3.00	\$0.10
11 "	$1\frac{3}{4}$ "	3 44	3.10	3.40	.10
	2 "	<u>3</u> "	3.50	3.90	.12
	$2\frac{1}{4}$ "	3 66	4.00	4.40	.15
		3 66	5.00	5.50	.25
8 "	3 "	1 "	7.00	7.60	.35
1 pt.	31 "	1 66	8.00	8.75	.50
$1\frac{1}{2}^{1}$ "	$3\frac{7}{2}$	3 "	9.00	10.00	.65
	1 oz. 1½ '' 2¼ '' 3½ '' 4½ '' 8 '' 1 pt	Capacity. of Glass. 1 oz. $1\frac{1}{2}$ in. $1\frac{1}{2}$ '' $1\frac{3}{4}$ '' $2\frac{1}{4}$ '' $2\frac{1}{4}$ '' $4\frac{1}{2}$ '' $2\frac{1}{4}$ '' 8 '' $3\frac{1}{2}$ '' 1 pt. $3\frac{1}{2}$ ''	Capacity. Diameter of Glass. Thread. Iron Pipe. 1 OZ. 1½ in. ¼ in. 1½ ii. 1½ ii. 33 ii. 33 ii. 34 ii. 34 ii. 35 ii. 35 ii. 35 ii. 35 ii. 36 ii. 37 i	Capacity. Diameter of Glass. Thread. Iron Pipe. Each. 1 oz. $1\frac{1}{2}$ in. $\frac{1}{4}$ in. \$2.75 $1\frac{1}{2}$ '' $1\frac{3}{4}$ '' $\frac{3}{3}$ '' 3.10 $2\frac{1}{4}$ '' 2 '' $\frac{3}{3}$ '' 3.50 $3\frac{1}{2}$ '' $2\frac{1}{4}$ '' $\frac{3}{3}$ '' 4.00 $4\frac{1}{2}$ '' $2\frac{1}{2}$ '' $\frac{3}{3}$ '' $\frac{3}{8}$ '' $\frac{5}{1}$ '' '' $\frac{5}{1}$ '' '' $\frac{5}{1}$ '' '' '' '' '' '' '' '' '' '' '' '' ''	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$





The Cups are simple, reliable and handsomely finished. The adjusting valve is held under spring pressure, and when set for a desired feed will not be moved or disturbed by jarring. They are a very substantial and reliable article at a low price.





Cups will be sent regular pipe thread shanks as per above list, unless otherwise specified.



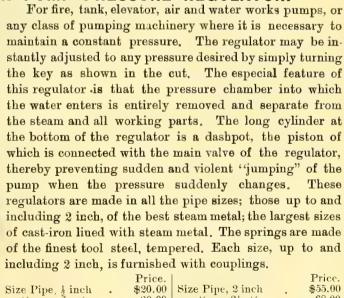
THE MASON REDUCING VALVES.

This Valve is designed to reduce the water pressure or air pressure, regardless of the initial pressure. It will automatically reduce boiler pressure for steamheating coils, dry-rooms, paper-making machinery, slashers, dye kettles and all places where it is desirable to use lower pressure than that of the boiler. The dashpot, which immediately fills with condensation, prevents all chattering or pounding, and requires no attention. No extra lock up attachment is needed, as the pressure is regulated by a key, which the engineer The sizes, up to and including 2 inch, are made of the best composition, and above that, of cast iron, with composition linings. In the larger sizes the composition lining is hung up in the valve, leaving a space between the iron and composition for the unequal expansion of the metals; thus there is no possibility of the niston sticking when the valve is heated

me preton ene	Bura	мпец	one va	146 18	пеаь	eu.	
Price.		Size,					Price.
\$18.00	3	inch					\$72.00
18 00	31/2	66					85 00
22. 00	4	66		•			100.00
28.00	5	66				•	135.00
35.00	6	66					180.00
44.00	8	66					250.00
57.00							

To increase pressure, turn the Key in the direction taken by the hands of a watch.

THE MASON PUMP PRESSURE RECULATOR.



	Price.			Price.
Size Pipe, & inch	\$20.00	Size Pip	e, 2 inch	\$55.00
16 3 16	20.00	44 -	25 "	68.00
1	25.00	4.6	3 "	85.00
11 11	30.00	66	3} "	100.00
" 15 "	42.00	4.6	4 13	115.00
_				

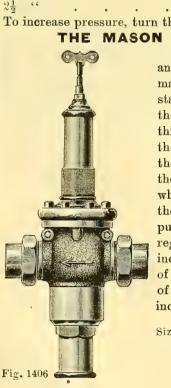


Fig. 1405. Size.

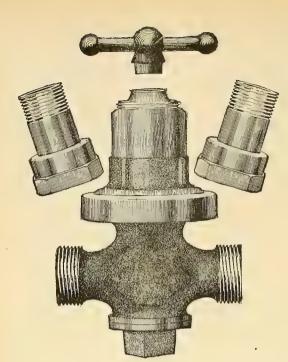


Fig. 1407.

SCREW SOCKET OR FLANGED.

For Water.

Fig. 1408.

			6. 1100.		
Si	ze of P	ipe.			Price.
			t or Flange	۵	\$24.00
		66	66		45.00
$\frac{2!}{3}$		66	66		60.00
4	6.6	66	66		85.00
5	66	66	6 6		100.00
		TO B			
		AND THE PROPERTY OF THE PARTY O			

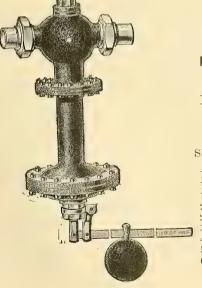


Fig. 1409.

ROSS PATENT REDUCING VALVES.

For Water.

SCREW TOP, WITH COUPLINGS.

Fig. 1407.

Size of P	ipe.	0.		Price.
$\frac{3}{4}$ inch				\$7.00
1 "				10.00
14 "				14,00
11 66				20.00

Above 2-inch Valves are made with screw sockets or flanges.

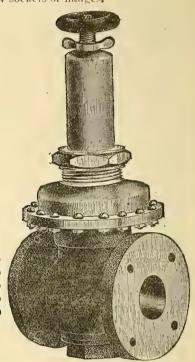


Fig. 1408.

ROSS PATENT REDUCING VALVES.

FOR STEAM.

Lever and weight for low pressure, or vacuum.

With brass couplings.

Fig. 1409.

				Ċ,		
į.	Sizo	e of :	Pipe.			Price.
	3	in.,	Iron body,	brass moui	ated, brass coupling	s \$15.00
	1	4.4	6.6	6.4	. (15.00
	11	4.6	4.6	6.6	. 6	18.00
	1 }	6.6	66	6.6	4 %	23.00
	11/2	6 4	4.6	4.6	flanged coupling	s 30.00
		6.4	£ 4.	4.6		* 45,00
3	25	6.6	4.4	1.6	4.4	60,00
	4	6.5	66	4.6	6.6	85,00
	5	4.4		6.6	4.	100.00
	6	6.4	6.6	4.4	6.6	150.00

For Vacuum, reverse lever and weight.

FOSTER "CLASS Q." PRESSURE REGULATOR.

FOR LOW PRESSURES.

Not Exceeding 15 lbs. Delivery.

PRICE LIST AND DIMENSIONS.

ds.

Size in Inches.	Screwed Ends.	Flanged End
1	\$20	
11	24	
$1\frac{1}{2}$	28	
2	35	\$38
$\frac{2\frac{1}{2}}{3}$	40	43
	48	52
$3\frac{1}{2}$	55	60
4	70	75
5	85	90
6	1 20	125
8.	• •	200
10		300
12		350

Steam Gauge Shown in Cut, \$3.00 Extra.

FOSTER PISTON ACTUATED PUMP COVERNOR.

With Compensating Spring. Controlled Solely by the Discharge Pressure.

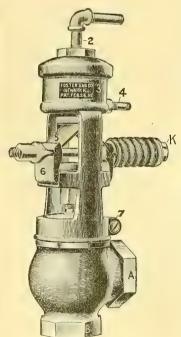


Fig. 1410.

The Valve is made throughout of the best steammetal composition, in all sizes up to 2-inch inclusive.

Larger sizes have iron bodies with brass trimmings.

Steam inlet is at A and outlet leading to the Pump at B. Connection is made at pipe 2 between the Governor and pump discharge, or pressure tank (preferably the latter), with a \(\frac{1}{4}\)-inch pipe, if not longer than 12 feet, or a \(\frac{3}{3}\)-inch pipe for greater length.

The power of the spring is regulated by adjusting nut K—to the right to increase the discharge pressure and to the left to diminish it.

Orders should specify approximately the required pump discharge pressure.

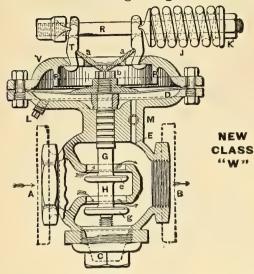
Fig. 1411.

PRICE LIST.

Size, inches . $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 4 5 Price . \$18.00 20.00 22.00 25.00 30.00 35.00 40.00 50.00 65.00

THE FOSTER PRESSURE RECULATOR AND PUMP RECULATOR,

For Regulating Pressures of Steam, Water, Gas and Air.



Nº 2510

Fig. 1412. SECTIONAL VIEW OF 1-2 TO 2 IN.

Fig. 1413.
PERSPECTIVE VIEW OF 21-2 IN. TO 6 IN.

PRICE LIST AND DIMENSIONS.

Size,	Screwed	Flanged	Diameter	Distance		PPROXIMAT		
	Ends.	Ends.	of	Between		ON.		SITION.
Inches.	Ends.	Ends.	Flanges	Faces.*	Screwed.	Flanged.		Flanged.
3.	\$20.00	\$22.00	$3\frac{3}{4}$ in.	$4\frac{1}{4}$ in.			11 lbs.	13 lbs.
1	22.00	24,00	$4\frac{1}{4}$ "	$5\frac{3}{4}$ "			12 "	16 "
$1\frac{1}{4}$	28.00	30.00	5 "	$5\frac{\tilde{1}}{2}$ "	19 lbs.	23 lbs.	21 "	26 "
$1\frac{1}{2}$	35.00	37.00	$5\frac{3}{8}$ "	6 "	22 ''	28 "	26 "	32 "
2	44.00	46.00	6 "	17 66	40 "	50 "	51 "	60 "
$2\frac{1}{2}$	57.00	60.00	7 66	9 "	60 "	75 "	70 "	87 "
3	72.00	75.00	71	10 "	73 "	80 "	84 "	95 "
$3\frac{1}{2}$	90.00	95.00	81 "	11 "	84 "	100 "	94 "	112 "
4	100.00	105.00	9 ''	12 "	139 "	160 "	155 "	180 "
$4\frac{1}{2}$	120.00	125.00	$9\frac{1}{4}$ "	14 ''	154 "	174 "		193 "
5	135.00	140.00	10 "	15 "	180 "	191 "		209 "
6	180.00	185.00	11 "	17 "	233 "	275 "		324 "
7		220 00	$12\frac{1}{2}$ "	181 "		390 "		480 ''
8		260.00	$13\frac{1}{2}$ "	204 ''		450 "		
10		350.00	16 "	$23\frac{1}{2}$ "		575 "		
12		450.00	19 "	274 ''	4 6	1050 "		
14		575.00	21 "	31 "		1375 ''		
16		700.00	$23\frac{1}{2}$ "	34 "		1600 ''		
18		875.00	25 "	$37\frac{1}{2}$ "		1900 "		
								_

*These are standard dimensions. Flanges with different dimensions, or distances between faces, are made only to order, for which an additional price is charged. Drilling flanges extra. Companion flanges, bolted to Regulators furnished at reasonable prices.

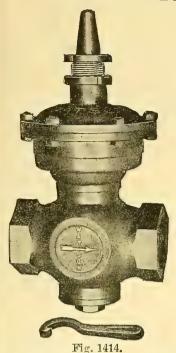
Special Valves, made throughout of Government Composition—such as we furnish for the

Special Valves, made throughout of Government Composition—such as we furnish for the United States Navy—are only made to special order, and at an extra net price of 35 cts, per lb. gross weight of Regulator. This extra charge is to cover the extra cost of the metal and the additional expense incident to making one or a few valves at a time, and affords no additional profit to the manufacturer.

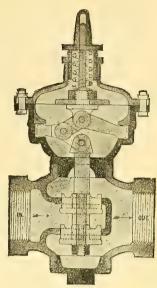
Note.—Unless otherwise specified, all Regulators will be provided with a spring capable of delivering any pressure between 10 and 60 lbs. If required for a higher or for lower pressures

than this, the order should so state.

WATSON'S NEW DIAPHRACM REDUCING VALVE.







INSIDE VIEW. Fig. 1415.

State in ordering for what purpose it is wanted, also about what the pressure on high side is, and about what is wanted on the reduced side.

Sizes and Prices.

Fig. 1416.

ALL BRASS MADE SCREWED ENDS ONLY.

Size,	$\frac{3}{4}$	inch			Price,	\$17.00
6.6	1	+ 6			66	20.00
66	11	6.6			65	25.00
66	$1\frac{1}{2}$	66			4.6	30,00

IRON BODIES, FLANCED ENDS.

Size,	2	inch			Price,	\$38.00
6.6	23	6.6			6.6	55.00
66	3	66			66	70.00
66	4	66			66	90.00
66	5	6.6			6.6	110,00
66	G	6.6			4.6	150.00

DIRECTIONS FOR OPERATING.

- 1. Screw the regulating screw all the way up.
- 2. Have lock nut all the way up.
- 3. Apply the wrench on regulating screw to screw down, until your gauge shows the reduced pressure required.
- 4. Then screw the lock nut down to hold the set and prevent tampering.

If for use on Water, Air, Gas or Vacuum Heating System give notice in order, as the Valves will be made for the purpose.

WATSON'S SPRING PRESSURE RECULATOR.

FOR STEAM PUMPS, ENGINES, STEAM VESSELS AND WATER, CAS AND AIR.

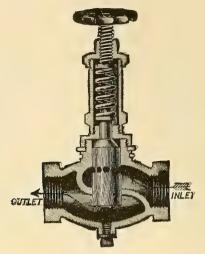


Fig. 1417.

ALL BRASS, SCREWED ENDS ONLY.

Size, inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	21	3	4
Price, each	\$14.00	17.00	22,00	28.00	38.00	55.00	70.00	90.00

IRON BODY AND BRASS LINED, FLANGED.

These are also tapped for screwing and can be used either flanged or screwed.

Size, inches		0	*	2	$2\frac{1}{2}$	3	4	5	6
Price each				\$38.00	55.00	70.00	90.00	110.00	150.00

WATSON'S PRESSURE RECULATOR.

WITH LEVER AND WEICHT.

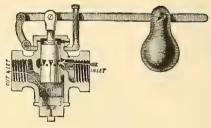


Fig. 1418.

SIZES AND PRICES SAME AS ABOVE.

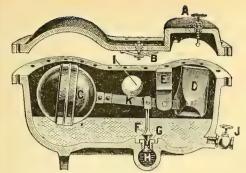


Fig. 1420.

"McDANIEL" STEAM TRAP.

A good continuous drainer, and does not discharge at intervals or throw out any steam with the condensation. Low Pressure Traps, all sizes, made to work from 1 lb. to 20 lbs. steam pressure. Regular Pressure Traps, all sizes, made to work from 1 lb. to 100 lbs. steam pressure.

When not otherwise ordered, Regular Pressure Traps will be sent.

Size No	of.	Trap							1	2	3	4	5
Pipe, si									1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	2}
Number	r of	feet, I	1 incl	ı pip	e, it	will	drain	٠	3500	7000	$140\bar{0}0$	20000	$250\bar{0}0$
Price					٠		•		\$30.00	40.00	65.00	75.09	100.00

McDANIEL'S EXTRA HEAVY STEAM TRAPS.

For working Steam Pressure above 100 lbs, to 150 lbs, per square inch. They are made from Special Patterns and tested to a pressure of 250 lbs.

Size No. of Trap		0	1	2	3	4	5
Size of inlet and outlet		$\frac{3}{4}$	1	$1\frac{1}{4}$	1 ½	2	$2\frac{1}{2}$
Drains No. of feet 1 inch pipe		1000	3500	7000	14000	20000	$250\bar{0}0$
" sq. ft. heating	surface		1166	2333	4666	6666	8333
Price		\$24.00	40.00	55.00	80.00	90.00	100.00

In ordering Extra Heavy Steam Traps, we should know the Highest Boiler Pressure at which the Trap will be used, as that determines the Size of Valve Outlet; otherwise we will send it made to work from 1 lb. up to 150 lbs. working pressure.

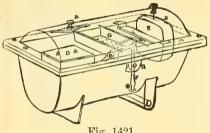


Fig. 1421.

Size N	0, 01	Tra	р.			0	e
Pipe si	ze o	f inle	et and	l outlet			
AT. of	foot	of 1	inch	pipe it	337311	drain	
TAO: OF	Teer	OT T	THULL	Diffic in	AA III	CELCULA	L

CHAPMAN'S SELF-REGULATING STEAM TRAP.

Regular Pressure are made to work from 1 lb. up to 75 lbs. Steam Pressure. No. 1 size can only be made to work up to 75 lbs. and no higher. Nos. 2, 3 and 4, regular sizes, can be made to work up to 100 lbs., but must be specially ordered, stating pressure wanted. Low Pressure are made to work from 1 lb. up to 20 lbs. only.

		1	2	3	4
		1	$1\frac{1}{4}$	$1\frac{1}{5}$	2
,		1500	3000	$70\bar{0}0$	10000
		\$25.00	35.00	60.00	70.00

"RELIABLE" STEAM TRAP.

For small drainage, that can be sold at a low price. No. 0 weighs 35 lbs.; No. 00 weighs 30 lbs. Both sizes work at from 1 lb. to 100 lbs., steam pressure only, and no higher.

	Size of	Drains	
No. of	Inlet and	No. of Feet	
Trap.	Outlet.	of 1 in. Pipe.	Price.
0.	$\frac{3}{4}$ inch.	1000	\$12.00
00.	1 66	450	8.00
	2		

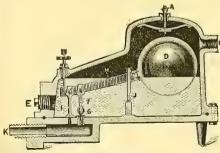


Fig. 1422.

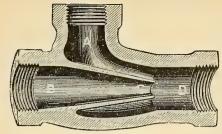


Fig. 1423.

McDANIEL'S SUCTION TEE. RECULAR YEES, 100 LBS.

Size, $\frac{3}{4}$ in. 1 in. $1\frac{1}{4}$ in. $1\frac{1}{3}$ in. 2 in. $2\frac{1}{3}$ in. 3 in. Price, \$0.80 1.00 1.25 1.50 2.00 2.50 3.00

EXTRA HEAVY TEES, 250 LBS.

Size,	1 in.	$1\frac{1}{4}$ in.	$1\frac{1}{2}$ in.	2 in.	2} in.
Price,	\$2.00	2.50	3.00	4.00	$\tilde{6.00}$
Size,	3 in.	$3\frac{1}{2}$ in.	4 in.	5 in.	6 in.
Price.	\$9.00	12.00	15.00	24.00	34.00

This is a Fitting that will make all bad jobs of Steam Heating work well, and stop the snap-

ping and backing up of one return on another.

Wherever two returns back up on another, it will stop the same—by using the shortest one. getting its steam first at B, and the other and weaker one at A, as by this means the stronger one will act as an ejector, and cause the weaker one to circulate freely. All can then be connected at D, and carried on to the main waste or return. The Suction Tee can be used to advantage in making all connections on heating jobs. Where condensation returns to the boilers. put it on wherever two returns come together.

SEAMLESS COPPER BALL FLOATS.

4 41 5 6 Size, inch, 54 10 11 12 oz. 13 lb. Weight, each, 13 oz. $1\frac{1}{4}$ lb. 2½ lb. 3½ lb. 4½ lb. 5½ lb. 9½ lb. 12½ lb. \$23.00 23.00 27.00 34.00 49.00 64.00 79.00 105.00 128.00 Price, per doz., 27.0012½ in., 18½ lb., \$14.50 16 in., 39 lbs., \$31.25 each. 15 in., 33 lbs., \$28.50

We guarantee all our floats not to fill or collapse under a pressure of 300 lbs. per square inch, unless otherwise specified, for a period of one year from date of shipment.

In ordering, be sure to specify the dimensions of nipple, and whether male or female.



Fig. 1424. McDANIEL.

KEYSTONE EXHAUST PIPE HEAD.

Made without the Cast-iron Top.

Fo	r 2	inch	Iron	Pipe,	Screwed,	\$14.00
6.6	57	4.5	6.6	6.6	+ 4	16.00
66	3	6.6	4.4	6.6	6.	18.00
6.6	$3\frac{1}{2}$	6.6	6.6	6.6	4.6	21.00
. 6	4	6.6	6.6	4.6	6.6	24.00
6 +	5	b 6	6 6	4.6	6.4	30.00
٠.	6	6.4	64	6 6	Flanged,	36.00
66	6	4	4.6	6.6	46	43.00
4.6	8	. 6		6 6	6.6	50.00
	10	4	66	4.4	66	85.00
*4	13	6.6	6.6	44	66	100.00

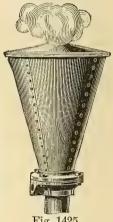


Fig. 1425. KEYSTONE.

McDANIEL'S EXHAUST PIPE HEADS.

CAST IRON TOP.

Diameter of Exhaust Pipe, Dia. Flanges on) Exhaust Heads Number of Size of

2 2^{1} 9 10 12 Sc'd Sc'd Se'd Se'd Se'd 12 13 12 14 14 18 1 2 2 1 1 $1\frac{1}{1}$ 11 11; 1 !; 11 2 2 $2\frac{1}{3}$ Drip Pipes, Price, each,

\$25.00 27.50 30.00 35.00 40.00 50.00 60.00 70.00 85.00 105.00 120.00 150.00 14, 15, 16, 18, 20 and 24 inch quoted on application.

Can ship any size of Exhaust Heads up to and including 8-inch out of stock; other sizes made to order on short notice.

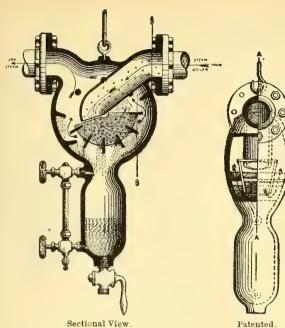


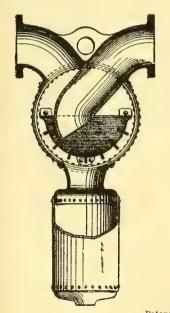
Fig. 1426.

JENNINGS' COMBINE SEPARATOR. FOR EXHAUST OR LIVE STEAM.

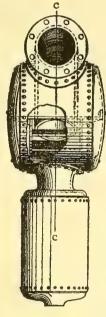
			HC	RIZ	ONT	AL	FORM.
)	Diameter of Steam Pipe.	Diameter of 1 langes.	Face to Face of Flanges.	Size of Drain Pipe.	Width of Chamber,	Total Height over all.	Price.
١	2 sc	erew.	11	3	$4\frac{3}{8}$	19	\$40.00
١	$2\frac{1}{2}$	$8\frac{1}{2}$	15	1	$7\frac{3}{4}$	$28\frac{1}{4}$	50.00
l	3	$8\frac{1}{2}$	15	1	7^{3}_{4}	$28\frac{1}{2}$	60.00
	3_{2}^{1}	10	19	$1\frac{1}{4}$	11_{1}^{1}	37	70.00
	4	10	19	$1\frac{1}{4}$	$11\frac{1}{4}$	37	80.00
	$4\frac{1}{2}$	11	23	$1\frac{1}{2}$	$14\frac{7}{8}$	44	95.00
	5	11	23	$1\frac{1}{2}$	14^{7}_{8}	44	110.00
	6	14	27	2	18^{5}_{8}	$60\frac{1}{2}$	140.00
	'7	14	27	2	$18\frac{5}{8}$	$60\frac{1}{2}$	160.00
	8	16	32	$2\frac{1}{2}$	$21\frac{7}{8}$	72	200.00
	9	16	32	$2\frac{1}{2}$	21^7_8	72	240.00
		Como:	mo + 0 m		. 0 :	1 . 4 .	0 1 1

Separators from 2 inch to 9 inch inclusive are made of cast-iron,

Above prices are for either horizontal or vertical type.



Patented. Fig. 1427.



JENNINGS' COMBINE SEPARATOR. BUILT ENTIRELY OF STEEL.

Diameter of Steam Pipe.	Diameter of Flanges.	Face to Face of Flanges.	Size of Drain Pipe.	Width of Chamber.	Total Height over all.	Price.
10	$17\frac{1}{2}$	42	$2\frac{1}{2}$	$31\frac{1}{4}$	$78\frac{3}{4}$	\$330.00
12	20	$44\frac{1}{2}$	$2\frac{1}{2}$	$33\frac{7}{8}$	$86\frac{1}{4}$	450.00
14	23	$47\frac{1}{2}$	3	$36\frac{3}{8}$	$94\frac{1}{2}$	600.00
16	25	51	3	39_{8}^{3}	$102\frac{1}{2}$	800.00
18	$27\frac{1}{2}$	55	$3\frac{1}{2}$	$42\frac{3}{4}$	$110\frac{3}{4}$	1000.00
20	29	$59\frac{1}{2}$	$3\frac{1}{2}$	46	$118\frac{1}{2}$	1200.00

For excessively high pressures, producing quadruple effect.

THESE PRICES ARE FOR SEPARATORS WORKING UP 125 LBS. PRESSURE,

An additional charge of 10 per cent, of list price for pressures above 125 lbs. We are prepared to build Separators of special design to meet peculiar requirements.

ALWAYS GIVE HIGHEST BOILER PRESSURE.

THE ASHTON LOCK-UP POP SAFETY VALVE.

NO. 3 STYLE.



Specially Adapted for Boilers in Mills, Factories, Electric Light and Power Stations.

Size Valve, inches 2 2_2^1 3 3_2^1 4 4_2^1 5 5_2^1 6 Price . . . \$30.00 40.00 55.00 64.00 70.00 80.00 85.00 105.00 125.00 Diameter of Inlet Flange, inches, 7 8 9 10 10 12 12 14 14

Always state in ordering whether flanged or screw end valve is desired.

Always mention on order the highest working pressure carried.

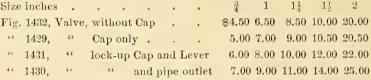
THE ASHTON POP SAFETY VALVE. FOR SMALL STATIONARY AND PORTABLE BOILERS.

These Valves, made entirely of high grade composition metal, finely finished, the springs of Jessop's Steel. They have beveled seats, encased spring chamber, pivoted spring discs, and give great efficiency and durability.

PRICE LIST.



Fig. 1431.



In ordering always mention Fig. No. of style wanted, and give highest working pressure carried.

Every valve is tested at factory before shipment.



Fig. 1430.

CAM LEVER MARINE POP SAFETY VALVES WITH LOCK-UP ATTACHMENT.



These valves have beveled seats at an angle of 45° and with the powerful cam lever is arranged to lift the valve off its seat one-eighth the diameter of the valve opening thus fully complying with the rules and regulations of the U.S. Board of Supervising Inspectors of Steam Vessels.

These marine valves have been accepted by the Chief Engineer of the U. S. Navy Department and are in use on many of the latest Cruisers and Battleships.

IRON MARINE VALAE. The working parts are made of high-grade compo-comp. YACHT VALVE. Fig. 1433. sition metal; the springs of Jessop's Steel. Fig. 1434.

Size inches Fig. 1434, Valve, each	• 3/4	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	33	4	44	5	$5\frac{1}{5}$	6
Fig. 1434, Valve, each	\$7.20	9.60	12.00	14.40	25.00	40.00							
" 1433, " "													
Inlet Flange diam. inch	ies		0 •	o 6	n +	8	9	10	10	12	12	14	14
Outlet Flange " "			B 0			7	71	8	81	9	$9\frac{1}{5}$	10	$10\frac{1}{5}$

Testing clamps furnished by us at no extra expense. Unless otherwise stated, all marine valves above 2 inch size are made with flanged inlet and outlet.



SPECIAL NOTICE.

These Locomotive Pop Safety Valves are not made in sizes larger than three inches, as we guarantee our 3-inch muffler or 3-inch open pop to give perfect relief Fig. 1435. to any locomotive boiler in the world.

THE ASHTON LOCOMOTIVE OPEN POP SAFETY VALVE.



Size	•	•	:	•	۰	•	٠	$2\frac{1}{2}$ inch	3 inch
Price		0	•		•			\$40.00	\$48.00

Fig. 1436.

THE ASHTON CAM LEVER LOCOMOTIVE OPEN POP SAFETY VALVE.



This Cam Lever Open Pop Valve, as shown, is virtually the Fig. 1436 Valve, shown at top of this page, with the addition of the Cam Lever attachment on top. This valve is oftentimes used on locomotives as an auxiliary to Fig. 1436 Open Pop or Fig. 1435 Muffler Valve. In such cases this Cam Lever Valve is usually set to work at a few pounds higher pressure. The Cam Lever makes it possible to trip the valve easily by hand, or by means of a rod attached to the lever it is possible to trip the Fig. 1437, valve from the cab. Price, $2\frac{1}{2}$ inch, \$45.00; 3 inch, \$55.00.

THE ASHTON WATER RELIEF VALVE.

For Fire Pumps, Hydraulic Elevators, Water Works, Pumping Stations and Stand Pipes,



Fig. 1438. 1RON WATER RELIEF VALVE.

State style sop's steel. wanted and whether screwed or flanged valve is desired.

Fig. 1439 style is termed the Underwriters' Pattern, having been competitively tested and accepted by the Associated Factory Insurance Companies. This valve is made with extra long spring, giving large relief. It is furnished with large wheeltop for easy adjustment. The working parts are of high grade composition metal. The springs of Jes- COMP, WATER



VALVE.

Fig. 1438 valve is made in sizes from \(\frac{3}{4}\) to 2\(\frac{1}{6}\) in. inclusive and is entirely of composition metal, finely finished, the spring of Jessop's steel.

Give pressure at which valve is to work

					PRICE							
Size Fig. 1438, price	3.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	25	3	31	4	$4\frac{1}{2}$	5	6
Fig. 1438, price	\$7.00	9.00	12.50	16.50	23.00	40.00						
Fig. 1439. "				30.00	40.00	60.00	75.00	80.00	85.00	105.00	125.00	150.00
Inlet Flange						8	9	10	10	12	12	14

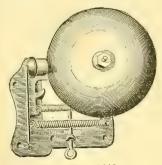


Fig. 1440.

LOCOMOTIVE CONCS. FIG. 1440.

6 9 10 Size, inches . \$2.50 3 50 5,50 6.50 Each

GONG BELLS.

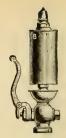
Size, in., 3 4 5 6 - 8 10 12 14 Each \$2.00 2.45 2.95 3.70 5.60 7.90 13.50 22 00 28 80

TRIP CONCS.

S'ze, inches		13	}	15	18	25
Each .		\$16.	00	22.00	-27.00	to order
Large Pulls					Each	\$1.75
Extra Large	Pulls				66	2.25

STEAM CHIME WHISTLES.

Diam. of Bell, Inches 2 12 10 $\frac{3}{4}$ 2 21 3 Pipe size, " 1 14 13 Fig. 1441, \\$5.00 8.00 14.00 22.00 38.00 85.00 150.00 260.00 Each Fig. 1442.) 7.00 11.00 18.00 28.00 42.00 100.00 180.00 300.00 Each



W HOUT VALVE. Fig. 1441.

PLAIN WHISTLES.

WITH VALVE. Fig. 1442.



1 14 13 21 3 Diam. of Bell, inches, 1/4 3 3 8 3 1 Pipe Size, \$2.20 2.75 5.25 3.00 4.35 7.25 Fig. 1443. Each, Fig. 1444, Each, 3.10 3.75 4.00 5.506.50 8.50

WITHOUT VALVE. Pipe Size, Fig. 1443. Fig. 1443,

31 5 Diam. of Bell. Inches. 4 6 8 66 1 14 14 2 21 Fig. 1443, Each, \$9.50 12.00 19.00 24.00 70.00 46 11.50 15.00 22.5033.00 95.00 Fig. 1444,



Fig. 1444.



WHISTLE VALVES.

Size, Inches, $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3 Price, Each, \$2.50 3.00 3.50 5.00 6.00 9.00 18.00 27.00

Fig. 1445.

RELIANCE SAFETY WATER COLUMNS.

THE LUNION TO CO.

Number . 1 1½ 2 5 6 7 9 11 13 15 Style . H.&L. H.&L. Low. H.&L. Low. H.&L. H.

Japanned, with Gauge CocksandWater Gauge, Each,

35.00 35.00 32.00 40.00 38.00 45.00 50.0) 55.(0 65.00 70.00

Finished Brass, without Gauge Cocks or Water Gauge, Each,

70.00 . . 65.00 80.00 75.00

Finished Brass, with Gauge Cocks and Water Gauge, Each.

85.00 . . 80.00 100.00 95.00

Fig. 1446.

DESCRIPTION.

Number		1	116	2	. 5	6	7	9	11	13	15
Dimensions Over All .		3¾x23!4	$5x281_{4}$	$\pm a_4 x 23 v_4$	454x2916	414x2714	514×36	514×44	5x58	5x64	5x70
Diameter Boiler (Maximum)		54	54	60	${\bf Any Diam}$.	Any Diam.					
Steam Pressure, Lbs., (Maximun	ı).	150	200	150	Any Pres.	Any Pres.					
Size Boiler Connections .		1	$1^{1}4$	1	194	11/4	153	144	1^{1}	112	110
Variations Between Alarms, inch	ies,	6	6		8		12	18	24	30	36
Length of Glass		12	12	12	16	16	19	24	30	36	42
Distance between Gauge Cocks		3	3	3	4	4	6	9	12	15	18
Size Trimmings		1/2	1/2	1/2	34	34	34	34	34	34	34

Number 9, 11, 13 and 15 are for use on vertical boilers; all other sizes for horizontal boilers.

JENNINGS' SIGHT INDICATOR.

CENNINGS GET INDAGS

Fig. 1447.

A tell-tale on Separator and Trap with Automatic Stop Water Gauge. Neat and attractive. A preventive of disastrous results.

Pipe Size, inches . $1\frac{1}{4}$ 21 1 11 Distance from centre to centre of Water

Gauge, inches 10 Length from end to end. inches . $14\frac{3}{4}$ 213 173 $19\frac{1}{2}$ 265. \$14. 20. 20° 24. 16.

In case a glass breaks, the steam is shut off by the automatic water gauges, and no danger of scalding the attendant. This device places the Separator under the control of the attendant, and gives ample time to open the by-pass in case the trap fails to work, or is not equal to the flood of separated water when priming, or from other causes of excess water which will show in the water glass.

As many buyers experience a difficulty in ordering valves and Pure Gum to suit their requirements, we give here a number of grades with a brief description of each, which may be of service in making selections. We have small samples of each grade, numbered to correspond with this list, which we will gladly forward to any one requiring

No. 1. An absolutely pure valve made entirely from Fine Para

Rubber.

RUBBER VALVES.

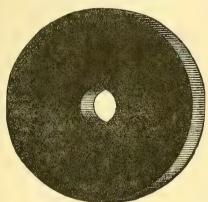


Fig. 1448.

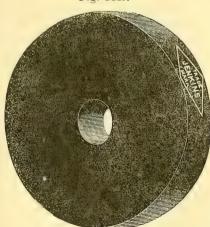


Fig. 1449.

No. 2. A very fine High Grade Valve, very soft and light.

No. 3. A High Grade Valve made from prime stock, and is soft and pliable.

No. 4. A High Grade Valve made from prime stock, but more solid and firm than No. 3. Makes an excel-

lent pump valve.

No. 5. Very similar to No. 4, but not of so high a

No. 6. A semi-hard Hot Water and Oil Valve, made in three degrees of hardness, as follows: No. 6A, a stiff valve which can be slightly depressed with the finger nail. No. 6s, the same stock, vulcanized at higher heat, and is slightly flexible. No. 6c, same stock, vulcanized at still higher heat, and not flexible.

No. 7. A soft medium priced stock.

No. 8. A medium priced valve, somewhat harder than No. 7.

No. 9. A very soft medium priced stock.

No. 10. A medium soft low priced stock. No. 11. A medium soft lower priced stock.

No. 12. A low priced Hot Water and Oil Valve.

No. 13. A very low priced stock. No. 14. A still lower priced stock.

No. 15. A very high grade red valve. No. 16. A good grade red valve.

No. 17. A very hard Hot Water and Oil Valve; would break before it would bend.

No. 18. A double faced Pump Valve, very hard on one side and soft on the other.

BROS. PUMP VALVES. JENKINS

These valves are especially adapted for pumping hot water, syrups, beer and other destructive fluids, also muddy and gritty water. When rubber valves have been found useless, these valves have given entire satisfaction.

For mining and high pressure service Jenkins Bros. No. 88 Pump Valves are in use on 450 pounds pressure,

and are giving entire satisfaction.

They also manufacture a fine grade of Rubber Valves for cold water and air service. When ordering valves, please state for what purpose you desire to use them. Price, \$1.00 per pound.

In ordering Pump Valves, give DIAMETER, THICKNESS and SIZE OF HOLE.

SIPHONS AND COCKS.





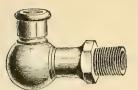


Fig. 1451.



Fig. 1452. T HANDLE STEAM

GAUGE COCK.



Fig. 1453.



Fig. 1454.



Fig. 1455.

LEVER HANDLE UNION STEAM GAUGE COCK.

40.00

Price	LIST.

Siphons and Cocks.	Brass.	N. P.
Common Iron Pipe Siphon, each Fig. 1456	\$0.25	
" Brass " " Fig. 1456	1.00	\$1.50
" T Handle, Brass Cock Fig. 1452	.50	.75
Heavy " Fig. 1452	1,00	1.50
Small Unior, Brass Cock . Fig. 1455	1.50	2.00
Large " Fig. 1455	2.00	2.50
Straight Siphon, without Cock, Fig. 1450	1.00	1.50
Elbow " Fig. 1451	1.25	1.75
Straight "with Cock, Fig. 1453	1.50	2.00
Elbow " Fig. 1454	1.50	2.00



Fig. 1456.

SIPHON.

A Siphon should be used in connecting steam gauge. Before connecting gauge, first fill siphon with water, thus preventing the steam from coming in contact with spring of gauge. No steam gauge is warranted unless connected with Siphon.

LEVER PUMP AND TEST CAUCE.

This Pump is compact, net and durable. It occupies only a space of nine inches square. PRICES.



Fig. 1457, Pump and Gauge complete, nickel-plated, in velvet lined black walnut box, with lock, key and handles, nickel-plated trimmings, and small tools \$75.00 Fig. 1458, Pump only, nickel-plated. 50.00

Fig. 1459, Fig. 1457.

plain brass

WATER GAUGES.



Fig. 1458
FOR
EXPANSION
TANK.



Fig. 1459. ROUGH BODY, IRON WHEEL.

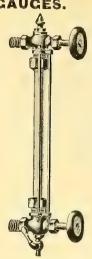


Fig. 1460.

FINISHED ROUND

FODY,

WOOD WHEEL.

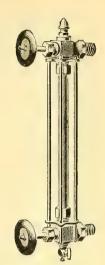


Fig. 1461.
FINISHED SQUARE
BODY,
WOOD WHEEL.

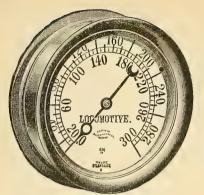
					8	lize of Pipe. Inches.	Size of Glass. Inches.	Number of Guards.	Price Each.
Fig. 1458						$\frac{1}{2}$	§ x 12	2	\$2.60
Fig. 1459	•					$\frac{1}{2}$	$\frac{5}{8} \times 12$	2	3.25
Fig. 1460						$\frac{1}{2}$	§ x 12	2	5.75
Fig. 1461		•				$\frac{\overline{1}}{2}$	§ x 12	4	7.50
Fig. 1461						$\frac{3}{4}$	$\frac{3}{4} \times 16$	4	10.00
Fig. 1461		•	•	•		$\frac{3}{4}$	$\frac{\hat{3}}{4} \times 16$	2	8.00

MONCRIEFF'S CENUINE SCOTCH CLASS TUBES.

						Exte	RNAL	DIAMETE	R.		
Length,								$\frac{1}{2}$ and $\frac{5}{8}$	3.4	$\frac{7}{8}$	1
10						Per	doz.	\$3.00	\$3.60	\$5.04	\$6.12
11						66	6.5	3.24	3.96	5.64	6.72
12						66	66	3.60	4.32	6.12	7.32
13						46	66	3.84	4.80	6.60	7.92
14	0					66	66	4.20	5.16	7.08	8.52
15		4.7				66	66	4.44	5.52	7.56	9.12
16						66	66	4.80	5.88	8 16	9.72
17	4					66	6.6	5.04	6.24	8.64	10.32
18						6.6	66	5.40	6.60	9.12	10.92
19						66	6.6	5.64	7.08	9.60	11.52
20						4.6	46	6.00	7.44	10.20	12.12
22						6.6	46	6.60	8.16	11.16	13,44
24						6.6	4.6	7.20	8.88	12.12	14.64
30			,	-		6.4	6.6	9.00	11.16	15.24	18.24
36						6.6	66	10.80	13.44	18.24	21.96
.48						66	66	14.52	18.00	24,36	29.16
60						6.6	6.6	18.12	22.56	30.48	36 48
72		4				66	6-6	21.84	27.12	36.48	43.80
				60	x 1:	inc.	hes,	\$60.00 pe	r dozen.		

SIGHT FEED LUBRICATOR CLASSES.

External diameter,			Inches.	$\frac{1}{2}$	5.8	34
Per dozen	•	٠	$2\frac{1}{2}$ to $3\frac{1}{2}$ inches long.	\$1.00	1.00	1,00



LOCOMOTIVE STEAM CAUCES.

Springs of Solid Drawn or Brazed Tube.

PRICES, INCLUDING COCK.

		Iron Case,	Iron Case,	Brass	N. P.
	Size.	Japanned.	N.P.Ring.	Case.	Case.
$6\frac{3}{4}$	inch Dial,	\$18.00	\$18.60	\$22.00	\$24.00
6	66	15.00	15.50	18.00	19.50
5	6.6	11.00	11.20	13.00	14.00

Fig. 1462.

IMPROVED SINGLE SPRING BOURDON PRESSURE OR VACUUM CAUGE. Springs of Solid Drawn or Brazed Tube.

These gauges are graduated to any desired pressure not exceeding 500 pounds.

All gauges are graduated from an open column of mercury, and are warranted correct.

NAME ON DIAL OF GAUGES FREE OF CHARGE.

Fig. 1463.

PRICES, INCLUDING COCK.

					Brass Deep	N.P.Deep
	Iron Case,	Iron Case,			Case, O.G. or	Case, O.G. or
Size.	Brass Ring.	N. P. Ring.	Brass Case.	N.P.Case.	Oct. Ring.	Oct. Ring.
in. Dial,	\$50.00	\$51.50	\$75.00	\$79.00	\$80.00	\$84.00
"	32,00	33.00	40.00	43.00	44.00	47.00
66	22.00	22.75	30.00	32 50	33.50	36.00
<u> </u>	16.00	16.60	20.00	22.00	23.00	25.00
4.6	13.00	13.50	16.00	17.50	18.50	20.00
66	10,00	10.25	12.00	13.25	13.75	15.00
4.6	8.00	8.20	11.00	12.00	12.50	13 50
46	8.00	8.20	10.00	11.00	11.50	12.50
	7.00	7.18	9.00	9.75	10.25	11.00
6.6	6.00	6.15	8.00	8.60	9.25	9.75
66	6.00	6.15	8.00	8.60		
	6.00	6.15	8.00	8.60		
	in. Dial,	Size. Brass Ring. \$50.00	Size. Brass Ring. N. P. Ring. in. Dial, \$50.00 \$51.50 " 32.00 33.00 " 22.00 22.75 " 16.00 16.60 " 13.00 13.50 " 8.00 8.20 " 8.00 8.20 " 7.00 7.18 " 6.00 6.15 " 6.00 6.15	Size. Brass Ring. N. P. Ring. Brass Case. in. Dial, \$50.00 \$51.50 \$75.00 " 32.00 33.00 40.00 " 22.00 22.75 30.00 " 16.00 16.60 20.00 " 13.00 13.50 16.00 " 10.00 10.25 12.00 " 8.00 8.20 11.00 " 7.00 7.18 9.00 " 6.00 6.15 8.00 " 6.00 6.15 8.00	Size. Brass Ring. N. P. Ring. Brass Case. N.P. Case. in. Dial, \$50.00 \$51.50 \$75.00 \$79.00 " 32.00 33.00 40.00 43.00 " 22.00 22.75 30.00 32.50 " 16.00 16.60 20.00 22.00 " 13.00 13.50 16.00 17.50 " 10.00 10.25 12.00 13.25 " 8.00 8.20 11.00 12.00 " 8.00 8.20 10.00 11.00 " 7.00 7.18 9.00 9.75 " 6.00 6.15 8.00 8.60 " 6.00 6.15 8.00 8.60	Size. Iron Case, Brass Ring. Iron Case, Brass Ring. Iron Case, Brass Ring. Brass Case. N.P.Case. Case, O.G.or Oct. Ring. "" 32.00 \$51.50 \$75.00 \$79,00 \$80.00 "" 32.00 33.00 40.00 43.00 44.00 "" 22.00 22.75 30.00 32.50 33.50 "" 13.00 13.50 16.00 17.50 18.50 "" 10.00 10.25 12.00 13.25 13.75 "" 8.00 8.20 11.00 12.00 12.50 "" 8.00 8.20 10.00 11.00 11.50 "" 7.00 7.18 9.00 9.75 10.25 "" 6.00 6.15 8.00 8.60 9.25 "" 6.00 6.15 8.00 8.60 9.25

DOUBLE SPRING BOURDON PRESSURE CAUCE.

Springs of Solid Drawn or Brazed Tube.

Gauges graduated for steam or water pressure, as desired.

PRICES, INCLUDING COCK.

		_				Brass Deep	N.P.Deep
		Iron Case,	Iron Case,			Case, O.G.or	Case, O. G. or
	ze.	Japanned.	N. P. Ring.	Brass Case.	N. P. Case.		Oct. Ring.
13 in	ı. Dial,	\$55.00	\$56.50	\$80.00	\$84.00	\$85.00	\$89.00
10	66	37.00	38.00	45.00	48.00	49.00	52.00
$\frac{8\frac{1}{2}}{6\frac{3}{1}}$	66	25.00	25.75	34.00	36.50	37,50	40.00
$6\frac{3}{4}$	66	18.00	18.60	22.00	24.00	25.00	27.00
6	66	15.00	15.50	18.00	19.50	20.75	22.25
$5\frac{1}{2}$	66	12.00	12.25	14.00	15.25	16.25	17.50
	66	11,00	11.20	13.00	14.00	15.00	16.00
$4\frac{1}{2}$	"	10.00	10.20	12.00	13.00	13.75	14.75



THE HYDRAULIC GAUGE.

These Hydraulic Gauges are made with special steel tube for high pressures, and are accurately and carefully tested.

When ordering, state maximum pressure required, and if dial is to show pressure in tons on ram, give exact diameter of ram. No extra charge for marking tons on ram on dials.

	Fig	. 1464.				Iron Case,	Iron Case.		
	Size.					Brass Ring.	N. P. bing.	Prass Case,	N.P. Case.
12	inch	Dial,				\$110.00	\$111.50	\$125.00	\$129.00
10	4.6	66				90.00	91.00	100.00	103.00
81	66	6.6				70.00	70.75	80.00	82.50
$6\frac{3}{4}$	6.6	66	٠			50.00	50.60	60.00	62.00
6	64	4.6				35.00	35.50	40.00	41.50
5	66	6.6				30.00	30.50	35.00	36.00
41	6.6	6.6				25.00	25.50	30.00	31.00
31	4.6	6.5				22.00	22.50	26.00	26.75

Hydraulic check valves and cocks extra. No extra charge for marking tons on ram on dials. For maximum hands add \$5.00 to list price. Special prices on Bourdon brass tube hydraulic gauges for pressure not over 1000 pounds.

COMBINATION WATER PRESSURE CAUCES.

For Indicating Pressure of Water in pounds per Square Inch and Corresponding Height of Water Column, Springs of Solid Drawn Tube.

Angle State State

Fig. 1465.

PRICES, INCLUDING COCK.

	Size	·.	Iron Case, Japanned.	Iron Case, N. P. Ring,	Brass Case.	N.P. Case.
12	inch	Dial,	\$60.00	\$61.50	\$80.00	\$84.00
10	6.6	66	40.00	41.00	50.00	53.00
8_{2}^{1}	6.6	4.4	30.00	30.75	40.00	42.50
$6\frac{3}{4}$	6.6	6.6	20.00	20.60	25.00 .	27.00
6	6 6	4.6	16.00	16.50	20 00	21.50
$5\frac{1}{5}$	66	4.6	14.00	14.25	16.00	17.25

In ordering, state maximum height of water pressure ever attained where it is applied.

IMPROVED COMPOUND PRESSURE AND VACUUM CAUCE.

This Gauge is for indicating both pressure and vacuum; pressure being marked in pounds per square inch, and vacuum in inches of mercury column.

If a pressure exceeding fifteen pounds is required, it should be stated in ordering. Springs of Solid Drawn Tube.



Fig. 1466.

PRICES, INCLUDING COCK.

	Size.		Iron Case, Japanned.	Iron Case, N.P.Ring.	Brass Case.	N. P. Case.
12	Inch I	ial,	\$60.00	\$61.50	\$80.00	\$84.00
10	66	66	40.00	41.00	50.00	53.00
81	6.6	66	30.00	30.75	40.00	42.50
$6\frac{3}{4}$	6.6	6.6	. 20.00	20.60	25.00	27.00
6^4	6.6	6.6	. 16.00	16.50	20.00	21 50
$\frac{51}{5}$	6.6	44	14.00	14.25	16.00	17.25
$4\frac{1}{2}$	4.6	44	. 12.00	12.20	14.00	15.00
$3\frac{1}{2}$	6.6	6.6	. 10.00	10.18	12.00	12.75

DUPLEX AIR BRAKE CAUCES.



Fig. 1467.

The two hands are of different colors, the one in red indicating Reservoir pressure, and the other in black indicating Train-Line pressure. We not only recommend, but we guarantee, this gauge to be superior to any duplex gauge manufactured, for accuracy, durability, compactness and finish.

These gauges are used on all the principal roads.

Price, \$20.00.

140 140 AMENIA

Fig. 1468.

AMMONIA CAUCE.

These Gauges have all interior parts of iron excepting the spring, which is of steel, to withstand ammonia or any other gas or acid which attacks the ordinary Bourdon spring.

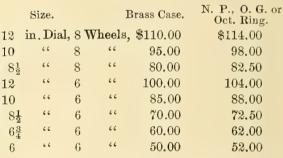
		Si	ize.		Iron Case and Ring.	Iron Case N. P. Ring.
8	or	81	in,	Dial,	\$45.00	\$45.75
		$6\frac{3}{4}$		6.	40.00	40.60
		6		66	35.00	35. 50
		5		66	30.00	30.00
		$4\frac{1}{2}$		66	25.00	25.00
		35		66	25.00	25.00

STANDARD TEST CAUCES. SPRINGS OF SOLID DRAWN OR BRAZED TUBES.

Each Gauge most carefully adjusted, tested and graduated in one pound marks.

	Size.		Brass Case.	N. P. Case.
10	in. Dial,		\$50.00	\$53.00
81	6.6	٠	40 00	42.50
$\frac{8\frac{1}{2}}{6\frac{3}{4}}$	66		30.00	32.00
6	6.6		25.00	26.50.
$5\frac{1}{5}$	66		20.00	21.25
$\frac{5\frac{1}{2}}{4\frac{1}{2}}$	66		16.00	17.00
$3\frac{1}{2}$	66		14.00	14.75
3	66		14.00	14.60

REVOLUTION COUNTERS. WARRANTED.



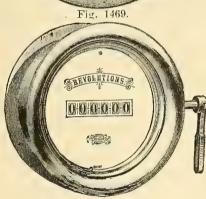


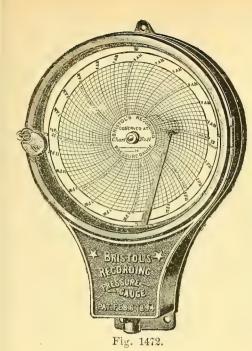
Fig. 1470.

LOCOMOTIVE AND MARINE CLOCKS.



Fig 1471.

		θ	0		90.00	32.00
	Size. h Dial,		Movement. Howard,	Time, 8 day	Brass Case. \$110.00	N. P. Case \$114.00
10			6.6	66	90.00	93.00
	44		66	4.6	80.00	82.50
$\frac{8\frac{1}{2}}{6\frac{3}{4}}$	6.6		4.4	66	70.00	72.00
12^{4}	6.6		Seth Thomas,	6	90.00	94.00
10	66		"	64	65.00	68.00
	6.6		4.6	66	55.00	57.50
$\frac{8^{1}_{2}}{6^{3}_{4}}$	6.6		6.4	6.6	45.00	47.00
12	64		Boston,	6.6	90.00	94.00
10	4.6		- 44	66	65.00	68.00
	66		66	5.6	55.00	57.50
$\frac{8\frac{1}{2}}{6^{\frac{3}{4}}}$	4.6		6.6	64	45.00	47.00
64	4.6		"	4.6	40.00	41.50
51	6.6		46	66	38.00	39.25
$\frac{5\frac{1}{2}}{5}$	66			4.6	35.00	36.00



BRISTOL'S RECORDING PRES-SURE CAUCE.

Makes a continuous record Day and Night

of

STEAM, WATER, CAS, OIL OR AIR PRESSURE.

This instrument may be placed in the office or engine room at any desired distance from boiler or vessel of which the pressure is to be recorded. If required, gauges are furnished with electric alarm for high or low pressure.

PARTIAL LIST OF BRISTOL'S RECORDING INSTRUMENTS.

Gauge No 14—For Gas or Air. Chart graduated to $\frac{1}{10}$ of 1 inch head of water. 24-hour chart. Total range, 0 to 4 inches.

Gauge No 19- For Gas or Air. Chart graduated to 1 of 1 inch head of water.

24 hour Chart. Total range, 0 to 8 inches.

Gauge No. 24—For Gas or Air. Chart graduated to \(\frac{1}{5} \) of 1 inch head of water. 24-hour Chart. Total range, 0 to 12 inches.

Gauge No. 21—For Gas or Air. Chart graduated to 1 inch head of water. 24 hour Chart. Total range, 0 to 24 inches.

Gauge No. 39—For working pressure to 375 lbs. Chart graduated to 25 lbs.

per square inch. 24-hour Chart. Total range, 0 to 500 lbs. Gauge No. 64—For working pressure to 750 lbs. Chart graduated to 50 lbs.

per square inch. 24-hour Chart. Total range, 0 to 1000 lbs. Gauge No. 26—For working pressure to 1200 lbs. Chart graduated to 50 lbs.

per square inch. 24-hour Chart. Total range, 0 to 1500 lbs.
Gauge No. 38—For working pressure to 2000 lbs. Chart graduated to 100 lbs. per square inch. 24 hour Chart. Total range, 0 to 3200 lbs.

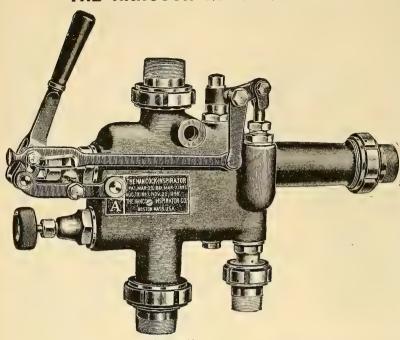
RECORDING GAUGES WITH ANY SPECIAL RANGES MADE TO ORDER.

PRICE.

4				\$50.00
				10.00
				.75
		۰		.85
				.25

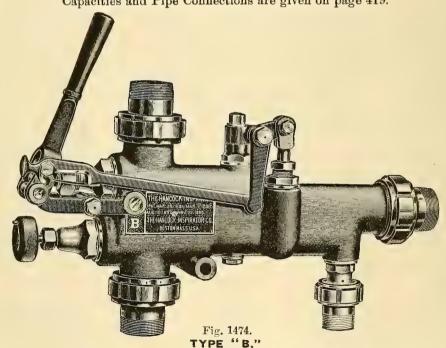
We also furnish Bristol's Recording Instruments for electricity and temperatures.

THE HANCOCK LOCOMOTIVE INSPIRATOR.



TYPE "A." Type "A" Locomotive Inspirators are identical in construction and efficiency and have the same capacities as Types "B" and "D," being different solely in the pipe connections, which interchange with other Locomotive Injectors.

Fig. 1473.
Capacities and Pipe Connections are given on page 419.



Type "B" Locomotive Inspirators are identical in construction and efficiency and have the same capacities as Types "A" and "D," being different solely in the pipe connections, which interchange with other Locomotive Injectors,

Capacities and Pipe Connections are given on page 419.

THE HANCOCK LOCOMOTIVE INSPIRATOR.

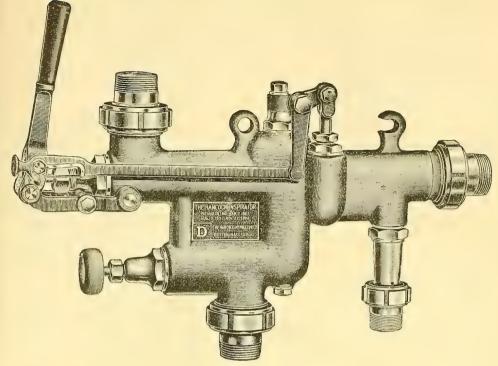


Fig. 1475.

"TYPE D."

"Type D" Locomotive Inspirators are a special design to conform to a certain class of injectors now in use with which they will interchange.

They are identical in construction and efficiency and have the same capacities as "Types A" and "B." Page 418.

PRICE LIST, CAPACITIES AND PIPE CONNECTIONS.

			-Сара	CITY .	PER H	OUR -			Pipe Connections					
2,	ybe	Price.	Stea	m Pi	essure		Ster			ction.		ivery.		rerflow.
Size	7		125 lb	s.	210	lbs.	Iron. (Copper.	Iron.	. Copper.	Iron.	Copper.	Iron.	Copper
5 1	A	\$75.00	1,102	gals.	1,210	gals.	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	11	$1\frac{1}{4}$	$1\frac{1}{2}$
5 I	В	75.00	1,102	+ 6	1,210	- 4.	1 1	1_{4}^{3}	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	1_{4}^{3}	11	1 3
6 4	A.	90.00	1,500	4.6	1,647	1.4	$1\frac{1}{4}$	$1\frac{1}{2}$	11	$1\frac{1}{2}$	$1\frac{1}{4}$	13	$1\frac{1}{4}$	$1\frac{1}{2}$
6 I	В	90.00	1,500	6.6	1,647	6.	1 ½	1_{4}^{3}	1 }	$1\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{1}$	$1\frac{1}{2}$	$1\frac{3}{4}$
7 1	A.	110 00	1,958	4.4	2,151	6.6	13	1_{4}^{3}	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{1}$	$1\frac{1}{2}$	$1\frac{3}{4}$
7 I	В	110.00	1,958	6.6	2,151	4.4	$1\frac{1}{2}$	1_{4}^{3}	11	1 3	$1\frac{1}{2}$	1.5	$1\frac{1}{2}$	$1\frac{3}{4}$
8 1	A .	125.00	2,479	4.6	2,723	4.6	2	2	2	$2\frac{1}{4}$	2	2	15	$1\frac{3}{4}$
8 I	В	125.00	2,479	4.4	2,723	6.6	2	5	2	$2\frac{1}{4}$	2	2	11	13
9 1	A	140.00	2,762	6.6	3,034	1.6	2	3	2	$2\frac{1}{4}$	2	2	15	13
9 I	В	140.00	2,762	6.6	3,034	4.6	2	2	2	$\frac{2}{4}$	2	2	11	13
10 7	A	160.00	3,698	4.4	4,068	6.6	2	$2\frac{1}{4}$	21/2	$2\frac{3}{4}$	2	21	13	$1\frac{3}{4}$
10 J	В	160.00	3,698	6.6	4,068	66	2	$2\frac{1}{4}$	57	$2\frac{3}{4}$	3	51	13	$1\frac{3}{4}$

THE HANCOCK LOCOMOTIVE INSPIRATOR.

PRICE LIST. CAPACITIES AND PIPE CONNECTIONS, CONTINUED.

	03		-CAPAG	CITY	Per H	our-		PIPE CONNECTIONS.								
Size.	T_{yp}	Price.	Stear	n Pi	ressure	s.	Ste	eam.	Suc	etion.	Del	ivery.	O	erflow.		
\tilde{x}	E		125 lb:	s.	210	lbs.	Iron.	Copper.	Iron.	Copper.	Iron.	Copper.	Iron.	Copper.		
3	\mathbf{C}	\$55.00	765 g	gals.	840	gals.	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$		
4	\mathbf{C}	60.00	1,012	6.6	1,112	4.6	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	134	11/4	$1\frac{1}{2}$	$1\frac{1}{4}$	13		
5	\mathbf{C}	75.00	1,102	66	1,210	6.6	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	11/2		
6	D	90.00	1,500	44	1,647	66	$1\frac{1}{4}$	11	$1\frac{1}{4}$	11/2	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	11		
7	D	110 00	1,958	66	2,151	6.6	11	$1\frac{3}{4}$	$1\frac{1}{2}$	134	11	$1\frac{3}{4}$	$1\frac{1}{2}$	13		
8	D	125.00	2,479	66	2,723	4.6	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	$1^{\frac{3}{4}}$	11/2	$1\frac{3}{4}$		
9	Ď	140.00	2,762	66	3,034	6.6	2	$2\frac{1}{4}$	2	2	2	$2\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$		

DIRECTIONS FOR ORDERING.

Give the size and type of any other make of Injector with which a Locomotive Inspirator is ordered to interchange. Special Cab Lever Extensions are furnished for Inspirators to be located outside the Cab. Specify if Nipples and Coupling Nuts are required for Steam, Suction, Delivery or Overflow Connections; also whether Nipples are to be used with *iron* or *copper*, pipe. With orders for Repair Parts give both the *name* and *number* of the part required, and the *size* and *shop number* of the Inspirator, which is stamped on the top of the Body.

THE HANCOCK INSPIRATOR, TYPES "A" AND "C."

FOR STATIONARY AND MARINE BOILERS.

PRICE LIST, CAPACITIES AND PIPE CONNECTIONS.

THIS LIST ADOPTED MAY 1, 1900.

			Den	- Class			Canacar	DED HOED	Hone	Horse Power		
			—PIPE CONNECTIONS—				-CAPACITII	ES PER HOUR-	,nors	E FOWER—		
		Prices				>	With	With	For the	On a Basis of		
	-2		ei .	=	5	0			Ordinary	30 Lbs.		
Sizes.	Type.	Types	Steam.	Suction	Delivery	Overslow	60 Lbs.	100 Lbs.	Type of	Evaporation		
iz		A	te	101		er	Steam	Steam	Boiler and	per H. P. per		
ďΩ	L	and C.	5Ω	70	<u>Б</u>	_ ≥	Pressure.	Pressure.				
						9			Engine.	Hour.		
10	\mathbf{C}	\$20.00	3	3	3 43 43 4	3.	120 gals.	135 gals.	8 to 15	12 to 20		
$12\frac{1}{2}$		25.00	ल'कल कल'कलोकल क	33 43 43	3	3, 43, 43, 43, 4	220 ""	245 ""	15 to 30	20 to 40		
	č	30.00	4 3	4 3	3	3	300 ''	340 ''	30 to 45	40 to 55		
15			4	4	4	4	900					
$17\frac{1}{2}$	· C	40.00	4	1	1	1	±20	110	45 to 65	55 to 80		
20	\mathbf{C}	45.00	3.	1	1	1	540 "	610 ''	65 to 80	80 to 110		
25	A	60.00	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	900 4	1020 "	80 to 130	110 to 180		
30	A	75.00	$1\frac{1}{3}$	1 🖟	13	$1\frac{7}{3}$	1260 "	1430 "	130 to 170	180 to 235		
35	A	90.00	$1\frac{1}{2}$ $1\frac{1}{2}$	$1\frac{1}{3}$	$1^{\frac{1}{5}}$	$1\frac{1}{2}$	1740 "	1975 "	170 to 230	235 to 300		
40	A	110.00	2	2	2	$1\frac{7}{3}$	2230 "	2530 ''	230 to 300	300 to 400		
45	A	125.00	2	2	2	$1\frac{7}{3}$	2820 "	3200 "	300 to 375	400 to 500		
50	A	150.00	2	$2\frac{1}{2}$	2	$1^{ ilde{1}}_{2}$	3480 "	3950 "	375 to 500	500 to 650		
55	Ā	200.00	2	$2\frac{1}{2}$	2	1 1 1 1	3650 "	4140 ''	500 to 600	650 to 750		
00	T.	200.00	~	¥2	~	1.2	0000	2170	300 10 000	000 10 100		

NOTE.—The special "Regulating Valve" is not applied to the 10, 12½ and 15 sizes of Type "C" Inspirators. The capacities of Types "A" and "C" Inspirators increase as the steam pressure increases, and are guaranteed to be actual as listed with feed water at a temperature of 75° Fahrenheit on a 4-ft. lift. The Horse Power Ratings given are based upon Centennial Standard of an evaporation of 30 lbs. of water per Horse Power per hour. For the ordinary throttling engine deduct one-third from the Horse Power Rating of the Inspirator given in the above list.

THE "LOFTUS" AUTOMATIC OR RESTARTING INJECTOR.

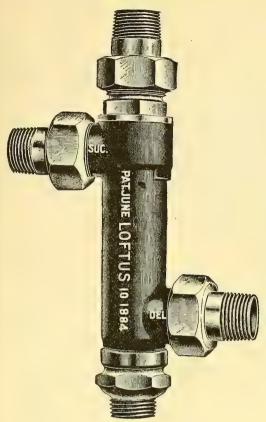


Fig. 1476.

FOR STATIONARY AND PORTABLE BOILERS, TRACTION AND HOISTING ENGINES, STEAM YACHTS AND TOW BOATS.

Is guaranteed to perform any scrvice for which an injector of this type is adapted. Restarts instantly if either steam or water supply is interrupted from any cause.

The Horse Power Ratings given below are based upon Centennial Standard of an evaporation of 30 lbs. of water per Horse Power per hour. For the ordinary throttling engine deduct one-third from the Horse Power Rating of the Inspirator given in the list below.

PRICE LIST, CAPACITIES AND PIPE CONNECTIONS.

				Horse Power.						
		Pipe Connections.	*Capacity per	For the	On a Basis of 30					
Size.	Price.	Steam, Suction,	Hour with	Ordinary Type	Lbs. Evaporation					
~		Delivery	80 Lbs.	of Boiler	per H. P. per					
		and Overflow.	Steam Pressure.	and Engine.	Hour.					
0	\$20.00	$\frac{1}{4}$	25 gals.	1 to 3	1 to 5					
1	15.00	र्वस्य व्यवस्थात्र स्था	60 "	3 to 6	5 to 8					
2	16.00	38	90 "	6 to 8	8 to 12					
3	18.00	$\frac{1}{2}$	120 "	8 to 15	12 to 20					
4	20.00	$\frac{1}{2}$	180 "	15 to 20	20 to 28					
5	25.00	400/400/400/4	260 "	20 to 30	28 to 40					
6	30.00	$\frac{3}{4}$	355 "	30 to 45	40 to 55					
7	40.00	1	5 10 ''	45 to 65	55 to 80					
8	45.00	1	600 "	65 to 80	80 to 110					
9	55.00	$1\frac{1}{4}$	800 "	80 to 100	110 to 145					
10	60.00	$1\frac{1}{4}$	1000 "	100 to 130	145 to 180					

^{*}Capacities guaranteed to be actual as listed with feed water at a temperature of 75° Fahrenheit on a 4-ft. lift.

THE METROPOLITAN "1898" INJECTOR.

MODEL O.

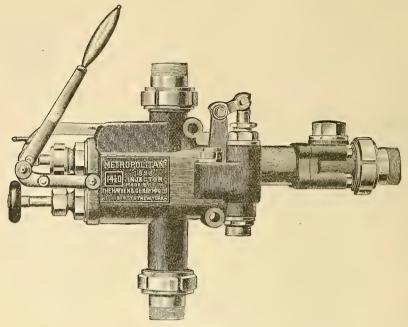


Fig. 1477.

				4.0			
Sizes.	Prices · Model O.	Sizes of all Pipe Connec- tions.	Size Overflow or Waste Pipe.	Capacity per Hour with 100 lbs. Steam Pressure.	Capacity per Hour with 175 lbs. Steam Pressure.	Horse-power for the Ordinary Type of Boiler and Engine.	Horse-power on a Basis of 30 lbs. Evap- oration per H.P. per Hour.
771	\$40.00	1 in.	3 in	525 gals.	600 gals.	45 to 65	55 to 80
$7\frac{1}{2} \\ 8\frac{1}{2} \\ 9\frac{1}{2}$	45.00	7 66	³ / ₄ in.	625	720 5415.	65 to 80	80 to 110
03		.1	4			0 , 0 , 0 ,	
9를	55.00	11 ''	1 ''	835 ''	950	80 to 100	110 to 145
103	60.00	1j "	1 "	1040 "	1195 ''	100 to 130	145 to 180
11]	75.00	13 "	$1\frac{1}{4}$	1350 "	1550 ''	130 to 170	180 to 235
$12\frac{1}{2}$	90.00	15 "	11 66	1800 ''	2070 **	170 to 230	235 to 300
133	110.00	2 €	13	2350 ''	2675	230 to 300	300 to 400
14.	125.00	2 "	11, "	2900	3275 "	300 to 375	400 to 500
$15\frac{1}{3}$	150.00	91 ···	ຼາ ແ	3600 **	3975 "	375 to 500	500 to 650
$16\frac{1}{2}$	200.00	2]	2 "	4300 **	4750 ''	500 to 650	650 to 800
_							

We send a flat strainer with sizes Nos. $7\frac{1}{2}$ to $10\frac{1}{2}$, inclusive.

FLAT STRAINERS FOR INJECTORS AND EJECTORS.

Made of Brass with Brass Wire Screen.												
	PRICE LIST.											
Size of Pipe Com- nections.	$\frac{1}{4}$	3 4	1	$1\frac{1}{4}$	1½	2	21	3	4			
Fig. 1478. For Metropolitan Automatic Injectors,	2-3 : { 3\frac{1}{2}-4	5-6	7-8	9-10	11-12	13-14						
For Metropolitan D. T. Injectors and Metropolitan	$2\frac{1}{2}$ - $4\frac{1}{2}$	$5\frac{1}{2}$ - $6\frac{1}{2}$	$7\frac{1}{2} \cdot 8\frac{1}{2}$	92-102	11½-12½	131-141	151-161	$17\frac{1}{2}$ - $18\frac{1}{2}$				
"1898" Injectors,) For H. D. Injectors, . Prices,	1 \$0.30	2 .40	; ;50	$^{4}_{.60}$	$\frac{5}{.80}$	$\frac{6}{1,00}$	$\begin{array}{c} 7 \\ 1.25 \end{array}$	8 1.75	$\frac{9}{2.50}$			

THE METROPOLTIAN AUTOMATIC INJECTOR.

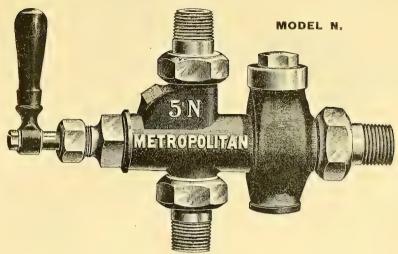


Fig. 1479.

						Horse Power
		Size of	Size	Capacity with	Horse Power	on a Basis
		all Pipe	Over-	80 lbs. Steam	for the Ordi-	of 30 lbs.
O.	Prices	Connec-	flow or	Pressure	nary Type of	Evaporation
Sizes.	Model N.	tions.	Waste-	2ft. Lift.	Boiler and	per H. P.
			pipe.		Engine.	per Hour.
2	\$15.00	38	$\frac{3}{4}$	60 gals.	4 to 6	5 to 8
3	16.00	38	$\frac{3}{4}$	80 "	6 to 8	8 to 12
$3\frac{1}{2}$	18.00	$\frac{1}{2}$	$\frac{3}{4}$	120 "	8 to 15	12 to 20
4	20.00	ನಿ∞ನಿ∞⊸ನಿಸಿಸಿಕುತ್ತಕ	8434344344 44344344	165 "	15 to 20	20 to 28
5	25.00	34	1	250 "	20 to 30	28 to 40
6	30.00	$\frac{3}{4}$	1	350 "	30 to 45	40 to 55
7	40.00	1	$1\frac{1}{4}$	500 "	45 to 65	55 to 80
8	45.00	1	1분	600 "	65 to 80	80 to 110
9	55 00	$1\frac{1}{4}$	$1\frac{1}{2}$	800 "	80 to 100	110 to 145
10	60.00	$1\frac{1}{4}$	$1\frac{1}{2}$ $1\frac{1}{2}$	1000 "	100 to 130	145 to 180
11	75.00	$1\frac{1}{2}$	2	1300 "	130 to 170	180 to 235
12	90.00	$1\frac{1}{2}$	2	1750 "	170 to 230	235 to 300
13	110.00	2	$2\frac{1}{2}$	2300 "	230 to 300	300 to 400
14	125.00	2	$2\overline{3}$	2850 "	300 to 375	400 to 500

We send a flat stra ner with each of these Injectors, sizes No. 2. to No. 10. inclusive.

U. S. AUTOMATIC INJECTOR. Capacity* All Pipe Gallons per Hour Horse Price. Size. Connections. Max. Min. Power. 36 15 1 to \$13.00 00 in 28 3 " 14.00 65 0 6 " 66 90 40 10 16.00 1 8 .. 18.00 2 66 125 60 15 15 " 75 20 20.00 170 3 20 " 16 250 125 30 25.004 30 " 6.6 340 40 30.00 140 5 40 " 250 60 40.00 475 6 60 " OVERFLOY 300 70 45,00 575 7 70 " 55.00 750 350 85 8 6.6 450 85 " 120 60.00 9 920 120 " 165 1350 675 75.00 10 Fig. 1480.

*The capacity is tested on a four foot lift with steam at 80 pounds. In ordering, always bear in mind that longer lift decreases capacity.

AMERICAN JET PUMPS.

	PRICE LIST.					
	No.	Size of Suction.	Size of Delivery.	Size of Steam Connection.	Gallons per Hour.	Price.
2//////	000	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{1}{4}$ in.	150	\$ 4.00
5	00	<u> </u>	3 44	1 44	250	5.00
	0	ğ 44	j 46	3 11	375	6.00
5	1	1, "	3 44	<u> </u>	500	7.50
	$\bar{2}$	11 "	1 " "	1 " 2 "	1000	10.00
	3	11 "	11 "	1 4 "	1500	12.50
	4	2 "	14 "	11 66	2000	15.00
	$\hat{5}$	23	2 "	13.66	2800	17.50
SUCTION	6	3		2 "	3800	25.00
Fig. 1481.	17	4 "	2½ " 3 "	2 "	6500	35.00
113, 1101,	š	5 "	4 "	$ ilde{2} frac{1}{2}$ "	10000	45.00

THE HANCOCK "EJECTOR" OR JET PUMP.

The Hancock "Ejector" is designed for use at Railroad Water Stations, on construction trains, for emptying wheel pits and similar railroad service; also for transporting liquids, either hot or cold, in tanneries, dye-houses, etc. All sizes will lift liquids 25 feet and elevate them about 15 feet above the Ejector with a steam pressure of 60 pounds. If it is desired to elevate liquids a greater distance than 40 feet, the Ejector should be placed near the liquid so that it can be forced by the Ejector.

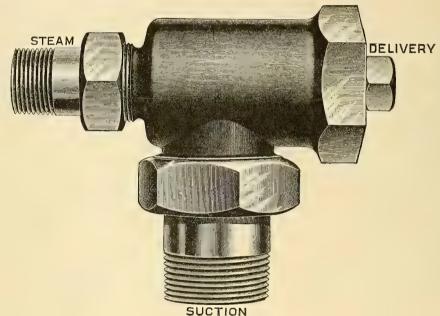


Fig. 1482. PRICE LIST, CAPACITIES AND PIPE CONNECTIONS.

	Siz	e.	Capacity per Steam Pressur		Si Si	Pi		ions.———— nd Deli v ery.	Price.
No.	1	Brass.	244	gals.		inch.		inch.	\$8.00
64	2	6.5	550	66	150 S	6.6	3	4.6	10.00
64	3	. 6	977	4.6	¥	6.6	1	6.6	15.00
6.6	4	4.6	1,525	66	34	6.6	$1^{\frac{1}{4}}$	66	20.00
4 -	5	Iron.	2,200	66	4 3 4	4.6	1 .	66	25.00
+ 6	6	* 6	3,900	4.6	1	6.6	2	4.6	35.00
	7	6.6	6,000	64	$1\frac{1}{4}$	6.6	21	64	45.00
6.6	8		8,800	6.6	15	1.6	3-	66	55 00
4.6	9	6.6	15,600	66	2	6.6	4	6.6	70.00
	10	6.6	24,300	44	$2\frac{1}{2}$	64	5	44	110.00
	11	6.6	35,00 0	66	$2\frac{1}{2}$	6.6	6	6.6	160.00

AMERICAN EJECTOR.



Fig. 1483.

	0		
PR	ICE	LIST.	

	PRICE LIST.										
No.	Size of Suction.	Size of Delivery.	Size of St am Con- nection.	Gallons per Hour.	Price.	No.	Size of Suction,	Size of Delivery.	Size of Steam Con- nection.	Gallons per Hour.	Price.
000	$\frac{3}{8}$ in.	∄ in.	$\frac{1}{4}$ in.	150	\$6.00	4	2 in.	1\frac{1}{2} in.	$1\frac{1}{4}$ in.	2000	25.00
00	1 44	3 44	1 44	250	8.00	5	21 6	2	$1\frac{1}{3}$ "	4000	35.00
0	3 66	1 44	3 44	375	9.00	6	3	21 16	2 ''	8000	40.00
1	1 "	3 66	j 11	500	10.00	7	4 ''	3 "	2 "	11000	50.00
2	14 66	1 "	3 44	1000	15.00	8	5 "	4 "	21 "	15000	65.00
3	$1\frac{1}{2}$ "	$1\frac{1}{4}$ "	1 "	1500	20.00	9	6 "	5 "	$2\frac{1}{2}$ ''	45000	175.00

These Ejectors are especially adapted for lifting and forcing water from a lower level to a great height, for instance, from pits, mines or quarries, up to the surface, or to fill tanks at any great elevation above the water level.

To enable one to know where to locate the Ejector, please note:

With 40 pounds steam—Placed 22 feet above water will discharge 20 feet above Ejector; placed 15 feet above water will discharge 27 feet above Ejector; placed 10 feet above water level will discharge 27 feet above Ejector; placed 5 feet above water level will discharge 29 feet above Ejector.

With 80 Pounds Steam -With 125 Pounds Steam-Lifts 18 feet and elevates above itself 55 feet. Lifts 15 feet and elevates above itself 76 feet. 59 " " 10 15 " 83 " 66 90 " 66 61 46 5 10 6.6 66 66 5 66

THE H-D EJECTOR.

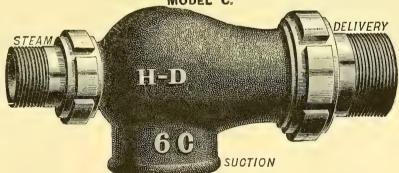


Fig. 1484. Capacity per Hour with 50 lbs. Steam Pressure PIPE CONNECTIONS-Prices Model C. Sizes. Suction and Delivery. Steam. 250 gals. \$8.00 1 Brass. 500 2 10.00 6 6 1 960 15.00 . 6 1300 66 20.004 2000 46 $1\frac{1}{4}$ 25.0011 2 4000 35.00 Iron. 21 13 45.00 8000 3 2 11000 66 55.00 8 4 66 21 15000 70.00. . 9 45000 175.00

No. 6 has iron body, balance brass. Nos. 7 and 8 have iron bodies and delivery connections, balance brass. No. 9 has brass tubes, balance iron. No. 10 has iron body, brass tubes, all connections flanged.



Fig. 1485.

LANSDELL'S PORTABLE RAILWAY SYPHON.

Shipped complete with Hose and Fittings for supplying construction engines with water.

PRICE No. 1.

No. 1 will supply the ordinary quantity of water required by a tender in 10 to 12 minutes; No. 2, in 6 to 8 minutes.

W	ith	25	feet each,	steam and	discharge Hose	\$110.00
	66	30	66	66	66	125.00
	6.6	35	66	"	"	135.00
	66	40	6.6	66	66	145.00
	46	45	6.6	66	66	155. 00
	66	50	4.4	"	66	165.00

PRICE No. 2.

With	25	feet each,	steam and	discharge Hose	\$145.00
46	30	6.6	66	66	155.00
66	40	44	66	46	180 00
66	50	6.6	46	66	2(0,0)

LANSDELL'S STEAM SYPHON PUMP.

High Pressure Pumps are constructed to work with 30 lbs, and upwards of steam pressure. Low pressure from 30 to 15 lbs.

The capacity of each size as given in the price list is based upon 60 lbs, steam pressure at the pump and 15 feet l.ft. With a greater lift or less steam these capacities will be reduced.



PRICE IRON BODY DOUBLE SUCTION.

Capacity			Diameter	Diameter	PRICES.	
	in Gallons	Horse Power	of	of	High	Low
No.	Per Minute.	Required.	Discharge.	Steam.	Pressure.	Pressure.
3.	30	1	$\frac{3}{4}$ Screwed.	$\frac{1}{2}$	\$8.00	\$10.00
4.	50	$1\frac{1}{2}$	1 "	$\frac{3}{4}$	10.00	12.50
5.	120	4	11/2 "	1	17.50	20.00
6.	200	6	2 "	$1\frac{1}{4}$	22.50	25.00
7.	320	8	$2\frac{1}{2}$ Flanged.	$1\frac{1}{2}$	35, 00	40.00
8.	450	12	3 "	$1\frac{1}{2}$	45.00	5 0.00
9.	800	25	4 "	2	65.00	75.00
10.	1800	50	6 "	$2\frac{1}{2}$	150,00	175.00

DOUGLAS BOLT-FASTENED REVOLVING STAND PUMP.

With Patent Adjustable Ears and Brass Valve Seat. For Lifting Water 25 feet or less.

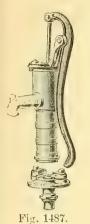


Fig. 1487 represents a very popular style of Cistern Pump, which has been known to the trade for over 50 years, and needs no explanation of its operation. We insert the cut here to call attention to the very important improvement which has been added and secured by Letters Patent, said improvement being the manner of securing the cylinder to the base by means of the adjustable ears and two bolts. The old style, with ears cast on cylinder, is liable to be broken by screwing the cylinder down to its place, thus causing a total loss of the cylinder. By these adjustable ears the spout can be placed in any position. This Pump has a brass valve seat, and is complete in every respect. Adapted for either iron or lead pipe.

					Capacity	
Siz	e.	Bore.	Stroke.	Pipe.	Per Stroke.	Price.
No.	0.	2 inch.	$3\frac{3}{4}$ inch.	$\frac{3}{4}$ inch. $\frac{3}{4}$ or 1 "	.042 gals.	\$3.50
6.6	1.	$2\frac{1}{4}$ "	5 "	$\frac{3}{4}$ or 1 "	.072 - ''	4.00
6 6	2.	21 "	5 "	1 or $1\frac{1}{4}$ "	.088 "	4.50
4.6	3.	$2\frac{3}{4}$ "	63 "	$1\frac{1}{3}$ or $1\frac{1}{5}$ "	.145 "	-5.00
6.6	4.	3 "	$6\frac{3}{4}$	$1\frac{1}{5}$ or $1\frac{3}{4}$ "	.171 ''	5.50
6.6	5.	$3\frac{1}{4}$ "	7 i "	15 or 13 "	.217 "	6.50
6.5	6.	31	71	2^{-} or $2\frac{1}{3}$.250 ''	8.00
5.2	8.	4 16	71 11	2 or 2½ · ·	.327 "	10.00
6.6	10.	$4\frac{1}{2}$ "	71 44	$2\frac{1}{2}$ or 3^{-} "	. 428 "	12.00

DOUCLAS BRASS CYLINDER PATENT REVOLVING STAND "PREMIUM" SUCTION PUMP.

All Parts Brass but Brake, Stand and Flange.



Fig. 1488 is a Cut of a Brass Cylinder Patent Revolving Stand Premium Pump, of which seven regular sizes are made. The cylinder, piston, valve seat and tube, and all parts below the spout, excepting the flarge, are Brass. It is constructed with patent detachable ears and two bolts to hold the cylinder to the base, which is a decided improvement over the old screw base, as the cylinder can be readily changed round so as to place the spout in any position, and the valves are easier of access. The Pump lets off the water to avoid freezing.

Size.	Bore.	Stroke.	Pipe,	Per Stroke.	Price.
No. 0.	2 inch.	3^3_4 inch.	inch.	.042 gals.	\$5,25
. 1.	21 4	5 "	3 or 1 ''	.072 ''	6.00
" 2.	$2\frac{1}{2}$ "	5 ''	1 or 11 ''	.088 "	7.00
3.	23/4 66	63	$1\frac{1}{3}$ or $1\frac{1}{3}$ "	.145 ''	8.00
44.	3* "	$6\frac{3}{4}$ "	15 or 13 "	171 "	10.00
" 5.	31 16	17/2 6 4	1 j or 2 " "	.217 "	13.00
" 6.	31	71	2 or 21 ''	.250 ''	18.00

DOUCLAS BOLT-FASTENED PATENT "PITCHER-SPOUT" SUCTION PUMP.

With Brass Valve Seat. To Lift from Depths of 25 Feet or Less.

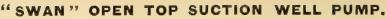


by the most inexperienced hands. Particularly adapted for Cisterns and Shallow Wells. For any height under, say 25 feet, they will raise a greater quantity of water in a given length of time, with the same power applied, than any other style of Pump in use. It has the Revolving top neatly arranged on the upper end of cylinder, outside of the water passage, and cannot be affected by rust. It is arranged to let the water back to avoid freezing. The lower valve seat is of Brass, which, being non-rustable, will not become eaten when the Pump is unused. Fig. 1489 is also arranged with suitable coullings for either Lead or Iron pipe.

Size. Bore. Stroke. Pipe. Iron. No. 1. 2½ inch. 4½ inch. 3 or 1 inch. \$4.25

Fig. 1489 is a Cut of a Bolt-Fastened Pitcher-Spout Pump. This

Size.	Bore.	Stroke.	Pipe.	Iron.
No. 1.	$2\frac{1}{2}$ inch.	4½ inch.	$\frac{3}{4}$ or 1 inch.	\$4.25
11 2.	3 44	41	1 or 1\frac{1}{4} "	4.75
44 . 3.	35	4 "	1\frac{1}{4} or 1\frac{1}{2} ""	5.25
" 4.	4 "	41 66	15 or 15 "	6.25
5.	41 66	45 **	2 or 25 "	9.50
· 6.	5	$4rac{3}{4}$ \sim	2½ or 3 ''	17.00



Anti-Freezing. With Screw or Bolted Cylinder and Revolving Stand.

This Pump is the most popular cheap Suction Out-Door Pump. Constructed with raised iron valve seat and revolving top it is well fitted for the many uses to which it may be put on out-door cisterns or driven wells.

It will be sent with brace if so ordered. If desired without

connecting pipe and rod deduct 50 cents from the list.

P	RI	CES	, Е	TC.

			Price.	Price.	Price
		Iron	Standard	Standard	Standard
			No. 1.	No. 2.	No. 3.
Bore.	Stroke.	Pipe.	29 in. Tall.	32 in. Tall.	35 in. Tall.
$2\frac{1}{4}$ in.	No. 1 Size	1 in.	\$ 7.00	\$7.25	\$7.75
$2\frac{1}{2}$ "	$5\frac{1}{4}$ in.	11 "	7.50	7.75	8.25
$2\frac{1}{4}$ in. $2\frac{1}{2}$ $2\frac{3}{4}$ 3	No. 2 Size		8.00	8.25	8.75
3 "	6 in.	$1\frac{1}{4}$ "	8.50	8.75	9.25
31 "	No. 3 Size	$1\frac{1}{4}$ or $1\frac{1}{2}$ "	9.00	9.25	9.75
4 "	6 in.	2 "		13.00	14.00

Standard only without lower cylinder or connecting pipes. Base tapped for 14 inch iron pipe.

No. 1 Size. No. 2 Size. No. 3 Size. \$5.50 \$5.00 \$6.50

DOUGLAS "IDEAL" PATENT WELL SUCTION AND FORCE PUMP.

With Screw or Bolted Lower Cylinder.

This cut shows what seems now to be the most popular common Out-Door Force Pump made. It has brace, lower cylinder and connection rod and pipe for use in wells over 25 feet deep. The brake may be placed in any position and lower valve easily reached for repair. Where a strong out-door common service Force Pump is needed we can commend the "Ideal" as the acme in its line.

PRICES, SPECIFICATIONS, ETC.

No. 1, with Standard or spout section about 51 in high to top of brake.

Bore of Working Cylinder.	Stroke.	Wrought Iron Set-length.	Capacity Per Stroke,	Price.
2½ inch	5 inch	3 ft. of $1\frac{1}{4}$ inch	.088 gals.	\$13.25
2½ inch	5 "	3 " $1\frac{1}{4}$ "	.107 "	13.50
3 "	5 "	3 " $1\frac{1}{4}$ "	.127 "	13.75
31 "	5 "	3 " 11 "	.15 "	14.25
31 "	5 "	3 " 11 "	.173 ''	14.75
~		~		- 200

No. 2. with Standard or spout section about 55 in, high to top of brake.

Bore of Working		Wrought Iron	Capacity	
Cylinder.	Stroke.	Set-length.	Per Stroke.	Price.
3 inch	7 inch	3 ft. of $1\frac{1}{2}$ inch	.177 gals.	\$18,00
31 44	74 66	$3 \cdot \cdot 1\frac{1}{2} \cdot \cdot$.21 "	18.25
$3\frac{1}{4}$ " $3\frac{1}{2}$ "	7 66	3 " 11 "	.242 "	19.25
4 "	7 .6	3 " 2" "	316 6	20.75

14.50

STANDARD OR SPOUT SECTION WITHOUT LOWER CYLINDER OR CONNECTIONS. No. 1, with lower end tapped for $1\frac{1}{4}$ in. Iron pipe . 2, " $1\frac{1}{2}$ ". \$10.25



Fig. 1490.



DOUGLAS PATENT "SWAN" FORCE PUMP.

Anti-Freezing, With 3 Feet Wrought-Iron Set-Length. Lower Cylinder Either Bolted or Screwed Together as Ordered. With Patent Detachable Ears.

Fig. 1492 shows the popular "Swan" Yard Force Pump, a very nice article for forcing water in any direction, watering gardens, washing windows or carriages, and for fire purposes. We recommend it as a very ornamental and substant al article. The Standard is secured to the base by patent detachable ears, which allows the upper section to be placed in any position desired, and has the advantage of not destroying the entire cylinder in case of breakage of ears.

Height from base of Standard to top of brake, 44 inches; stroke, 6

inches.

Bore.	Stroke.	Suction Pipe.	per Stroke,	Price.
$\frac{2^3}{3}$ in.	6 in.	$1\frac{1}{4}$ in.	.129 gals.	\$15,25
	6 "	14 "	.152 ""	15.25
31 11	6	$1\frac{7}{2}$ "	.189 ''	15.75
3½ " 3½ "	6	$1\frac{7}{2}$ "	.207 "	16.25

Price of Standard or upper section only, each, \$11.00.

Deduct 25 cents from above list when ordered without brace.

Deduct 50 cents from list when ordered without set-length pipe between cylinder and Standard.

DOUCLAS BOLT-FASTENED PATENT IMPROVED SUCTION AND FORCE PUMPS.

All With Brass Piston Rod and Revolving Brake Stand.

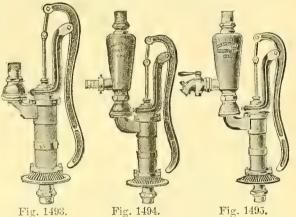
Fig. 1492.

Figs. 1493, 1494, 1495 are the most popular common style Force Pumps made.

They will throw water some sixty or seventy feet from hose pipe, making them most invaluable for every house for extinguishing fires, as a stream can be forced over any ordi-

nary two-story house.

The air-barrel styles have a discharge coupling at the top, and also at the side of the air-barrel; there is a circular plate in the top coupling, which can be placed in the side coupling when the pipe is to go on at the top, or in the top coupling when the side discharge is to be used, constituting it an air-chamber or barrel, for either the top or side openings. The Brass Pumps are ALL PARTS BRASS, except the Brakes, Stands, Flanges, and Air Barrels. The Brass Cylinder style have the working parts of brass and



WITH AIR BARREL.

WITH AIR CHAMBER AND COCK IN SPOUT.

are fastened to the cylinder with patent detachable ears, which allow spout and brake to be placed at any desired angle from each other.

				Price	s Shown	Price with	a Air-Barrel,	Prices with	1 Air-Barrel
			Suction	by F	ig. 1493.	like l	Fig. 1494.	and Cock,	Fig. 1495.
Size.	Bore,	Stroke.	Pipe,		Brass		Brass		Brass
No.	Inches.	Inches.	Inches.	Iron.	Cylinder.	Iron.	Cylinder,	Iron.	Cylinder.
0	2 in.	4 in.	3	\$8.00	\$11.50	\$9.00	\$12.50	\$10.50	\$13.00
1	21 111.	4	3 or 1	8.75	12.00	9.75	14.00	11.25	14.00
1	2	5	1 or 1!	9.50	14.00	11.00	15.00	12.50	15.00
2	21 11	0	1+ or 1+	10.00	14.50	12.00	16.00	13.50	18.00
3	~4	$0\frac{\pi}{4}$		11.00	15.00	13.00	17.00	14.50	20,00
4	3 "	04	$1\frac{1}{2}$ or $1\frac{3}{4}$						
6	35 "	51 "	$1\frac{3}{4}$ or 2	14.00	24.00	16.00	27.00	18.00	30.00

CAPACITY PER STROKE:

No. 0, .045; No. 1, .057; No. 2, .088; No. 3, .112; No. 4, .133; No. 6, .190 gallons.

DOUCLAS PATENT "SIDE-EARED" SUCTION AND FORCE PUMP.

Size.

With Revolving Brake Stand, Brass Piston Rod and Interchangeable Air-Barrel Plate. With Grained Plank.

The cut shows Fig. 1496, with Air-Barrel and Cock. This is a very convenient model for securing to the side of a building or partition, having two openings for discharge pipes is suited for applying hose at the side for extinguishing fires, watering grounds, washing windows, carriages, etc., and at the same time may have a pipe connected on at the top of the air-chamber, to carry water above the Pump, into tanks in upper stories of buildings, for bathing rooms. factories, etc., or by screwing off the couplings at side or taking off the hose at that point, may be used as a common lift Pump to discharge into a pail at the spout.

There is a circular plate in the upper coupling which is to be retained there to form a perfect air-chamber when the side coupling is used, with hose on same for throwing water in a steady, powerful stream through a discharge pipe; and this plate is to be changed to the side coupling when the Pump is to be used to force water through the pipe from the upper coupling, and so often changed as occasion

may require.

The break and stand swivel around to either side, to adapt to

right or left hand use. It has a brass piston rod and brass lower The Brass Pumps have all parts brass, except the brakes, stands

and air-barrels. We can furnish these with bolted valve-seat when Fig. 1496. so ordered.

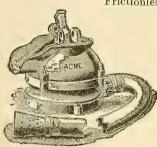
When ordered without Cock, one dollar and fifty cents will be deducted from the list on all sizes except No. 6, and on that size two dollars. We can also furnish this Pump without the plank if so ordered.

Peices, Specifications, Etc. Suction Capacity Pipe. Per Stroke. Stroke. Iron. Brass. Cylinder. Bore. .045 gals. 2 in. 4 in. in. \$10.50 \$18.00 66 21 66 66 4 .05711.2521.00

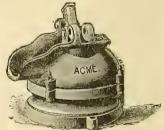
No. 0. \$14.00 6.6 1. 15.50 21 66 2. 66 5 66 .08812.5023.5016.50 or $1\frac{1}{4}$ $2\frac{5}{4}$ 66 66 3. 66 54 .11213.50 31.00 18.00 66 66 3 $5^{\frac{1}{4}}$ or 2 .133 14.50 35.00 21.00 4. 66 6. 34 66 51 or 2 .24018.00 40.00 29.00

DOUGLAS ACME DIAPHRACM PUMP.

Frictionless and non-chokeable. For Contractors' Use.



Patent Cuts show the Diaphragm Pump, which we can recommend as the very best article in the market, where a pump is required to discharge a large quantity of water with the least possible labor. Especially adapted for use on vessels, railroads, and by contractors for sewers, foundations of buildings, etc., as the valves will discharge matter containing sand, gravel, coal dirt, tar, mud,



Brass

drainage, grain and sanitary Fig. 1498.

This makes it particularly adapted for all places where Fig. 1497. matter, without wearing the pump. foreign substances are in the water. It has a heavy wrought-iron handle not shown in cut.

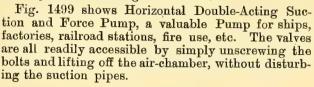
Fig. 1497. Prices. 9 in. diaphragm, for 2½-in. iron pipe or hose, suction on the side without hose No. 1. \$38.00 " 3 No. 2. 12\frac{1}{2} in. 43.00 Fig. 1498. Prices.

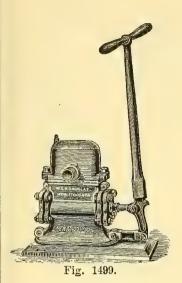
No. 1. 9-in. diaphragm, for $2\frac{1}{2}$ -in. iron pipe, capacity per stroke, $\frac{3}{4}$ gallon, suction connection at bottom \$35.00 123-in. diaphragm, for 3-in. iron pipe, capacity per stroke, 13 gallon, suction No. 2. connection at bottom 40.00

Fig. 1497 and Fig. 1498 both have the same capacity. The Diaphragms are made of best Para Rubber. Extra Diaphragms can be furnished at a reasonable charge, and the Pump set in perfect order for a long time at a trifling expense.

HORIZONTAL DOUBLE-ACTING SUCTION AND FORCE PUMP.

With Brass Lined Cylinder and Large Air-Barrel.





DIMENSIONS.

No.	Bore.	Stroke.	Suction Pipe.	Discharge Pipe.	Capacity per Stroke.
1	$2\frac{1}{2}$ in.	$5\frac{1}{4}$ in.	$1\frac{1}{4}$ in.	1¼ in.	.184 gals.
2	3 "	$5\frac{1}{4}$ "	$1\frac{1}{2}$ "	11 "	.266 "
3	4 "	$5\frac{1}{4}$ "	2 "	11 "	.474 "
4	5 "	$5\frac{3}{4}$	21 "	2 "	.804 "
5	6 "	$6\frac{1}{2}$ "	3 "	$2\frac{1}{2}$ "	1.312 "

PRICES.

No.	Iron, Brass Lined.	Iron, Brass Lined with Metal Valves	with Metal Valves
1	\$25.00	and Spring Piston. \$30.00	and Spring Piston \$100.00
2	27.00	33.00	120.00
3 4	$\frac{28.00}{35.00}$	$35.00 \\ 44.00$	$130.00 \\ 160.00$
5	40,00	51.00	200.00

Copper Lining, \$5.00 Net Extra.

HORIZONTAL DOUBLE-ACTING SUCTION AND FORCE PUMP. With Brass Lined Cylinder,

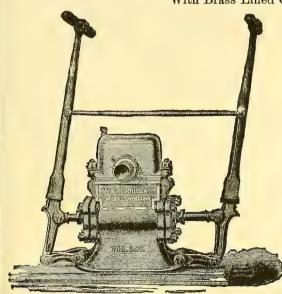


Fig. 1500 shows Horizontal Double Acting Suction and Force Pump, arranged with brake at each end to afford means of applying great power. This Pump is similar in construction to Fig. 1499, having the valves all under the cap, which can be repaired by simply unscrewing the nuts on the hinge bolts and lifting off the air-chamber, without disturbing the suction pipe.

Fig. 1500.

PRICES AND DIMENSIONS.

				PRIVES	, A 11 D	111 - 11 - 1 - 11	•.	
No.	Bore.	Stroke.	Suction Pipe.	Discharge Pipe.	Capacity per Stroke.	Iron Brass Lined,		All Brass with Metal Valves and Spring Piston.
1	4 in.	5½ in.	2 in. 24 "	$\frac{11}{2}$ in.	.474 gals.	$$40.00 \\ 45.00$	\$47.00 54.00	\$140.00 170.00
3	6 "	51 "	3 "		1.110 "	50.00	61.00 for \$5.00 extra	210.00

"EXCELSIOR" HORIZONTAL DOUBLEACTING SHIP PUMP.

With Copper-lined Cylinder, Adjustable Lever, Metallic Valves, Etc.

All appurtenances for fitting, etc., go complete with each pump. Arranged for hose, and lead or iron pipe connections. Prices quoted below do not include hose.

tion	s. Pri	ces quo	ted belo	w do	not in-	
clud	le hose					
		DIME	INSIONS.			
No. 1 2 3 4	Suction. Inches. $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$	Discharge. Inches. $1\frac{1}{4}$ 2 $2\frac{1}{2}$	Diam. Cylinder. Inches. 3 4 5	Stroke. Inches. 5 5 5 5 5	Capacity Per Rev. Gallons. $ \begin{array}{c} 3 \\ 1 \\ 2 \\ 8 \\ 5 \\ 1 \\ 0 \\ 0 \end{array} $ $ \begin{array}{c} 1 \\ 2 \\ 1 \\ 1 \\ 0 \\ 0 \end{array} $	
NT-		Pı	rices.	0	Brass	
No.			28.00	C	\$58.00	
$\frac{1}{2}$	•		32.00		60,00	
3	•		35.00		90.00	
4	•		45.00		120.00	in in B
				00	PRUSONALBANY	

Fig. 1501.

Fig. 1502.

DOUCLAS HAND ROTARY PUMP.

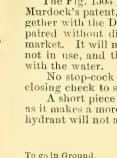
Fig. 1502 represents Hand Rotary Force Pump, which we are furnishing the trade. The construction of this Pump is of the geared pattern, so widely known by the public. We believe it to be a most serviceable article, and where a rotary pump is preferred, as may sometimes be the case, for use in breweries, gas works, and by oil dealers, etc., we can recommend this.

SIZES, CAPACITIES AND PRICES.

	Capacity per 100							
Size.	Suction.	Discharge.	Revolutions.	Iron.	Brass.			
No. 1	$1\frac{1}{4}$ inch	1 inch	13 gals.	\$20.00	\$42.00			
" 2	$1\frac{1}{4}$ "	1 "	14 "	23.00	47.00			
" 3	$1\frac{1}{2}$ "	11/4 **	17 "	27.00	52. 00			
66 4	$1\frac{1}{2}$ "	$1\frac{1}{2}$	27 44	35. 00	6 5. 00			
" 5	2 "	2 "	36 66	40.00	75.00			

DOUCLAS PATENT IMPROVED YARD HYDRANT.

NON-FREEZING.



The Fig. 1503 Yard Hydrant combines the patent movable water-way under Murdock's patent, and the pressure-cup packings of the Stacey patent, taken together with the Douglas check valve, closing with the pressure, so it can be repaired without digging up. This is the best and most complete hydrant in the market. It will not freeze in the coldest climate, as the water escapes freely when not in use, and the handle and screw that operates it does not come in contact

No stop-cock is required on the above, as it is furnished with our patent self-

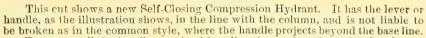
closing check to stop flow from street main when being repaired.

A short piece of lead pipe should be used in attaching iron pipe to all hydrants. as it makes a more flexible connection, and the action of the frost in heaving the hydrant will not as readily break the bottom.

PRICES,	ETC.	Fig.	1503.
---------	------	------	-------

go in Ground.	Fig. 1503, for fin. Pipe and Hose. Each.	Fig. 1503, for 1-in. Pipe Each.
$1\frac{1}{2}$ ft.	\$8.00	\$10.50
2 "	8.50	11.00
$\frac{2^{1}}{3}$ "	9.00	11.50
	9.50	12.00
$\frac{3\frac{1}{2}}{4}$ "	10.00	12.50
	10.50	13.00
5 "	11.50	14.00
6 "	13.00	15.50
17 66	16.00	17.00
8 "	17.00	18.50

DOUGLAS PATENT SELF-CLOSING HYDRANT. NON-FREEZING.



To open, pull the handle over in either direction; when through using, let go. and it immediately closes, and the waste opens, letting off the water to avoid freezing. If required to keep the water running, the lever can be fastened by a catch at the side.

It has all the advantages of the regular Fig. 1503 Hydrant, and is adapted to corporations where the Self-Closing Hydrant is required, to prevent the waste consequent upon carelessness in closing the ordinary hydrant.

PRICES. ETC. Fig. 1504.

To go in	Grou	ind	3 ft.	3½ ft.	4 ft.	5 ft.	6 ft.
Each,			\$11.00	11.50	12.00	13.00	14.00

DOUGLAS IMPROVED STREET WASHERS.

Patented December 17, 1886.

Fig. 1504.

Fig. 1503.

Fig. 1505 can be placed in the service pipe without a T, as the inlet is directly on either side, and the passage of water can be con-

No stop-cocks are required, as they are furnished with patent self-closing check to stop flow from street main when being repaired.

When ordered in dozen lots, we will cast any desired address on the covers of these Street Washers.

DDIOES TO 1505

PRICES: Fig. 1909.													
To go in Ground. Feet, . Price for 3-in. Pipe and Hose, Price for 1-in. Pipe and Hose,		$\begin{array}{c} 1\frac{1}{2} \\ \$6.00 \\ 8.50 \end{array}$	$\begin{array}{c} 2 \\ 6.50 \\ 9.00 \end{array}$	$\begin{array}{c} 2\frac{1}{2} \\ 7.00 \\ 9.50 \end{array}$	7.50 10.00	$8.00 \\ 10.50$							
To go in Ground, Feet, . Price for \(\frac{3}{4} \)-in. Pipe and Hose, Price for Lip. Pipe and Hose.		$\begin{array}{c} 4\\ \$8.50\\ 11.00 \end{array}$	$\begin{array}{c} 5 \\ 9.50 \\ 12.00 \end{array}$	6 11.00 13.50	$7 \\ 14.00 \\ 15.00$	$ \begin{array}{r} 8 \\ 15.00 \\ 16.50 \end{array} $							



THE KENNEDY COMPRESSION FIRE HYDRANT.

WITH OR WITHOUT FROST CASE.

DIMENSIONS AND PRICE LIST.

90						
Y. 6 " 9 "	W. 4 or 6 "	V. 4 or 6 "	U. 4 or 6 "	R. 4 or 6 "	O. 3 or 4 ins. 5 ins. 3 ins.	Diameter Diameter Valve of Opening.
99	33	3	9.9	9.9	ins.	D ion. Sta
			23 9	9.8.9	5 ins.	iameter of nd Pipe.
3, 9	33	33	4 ''	3 4	3 ins.	Valve Opening.
6 " One Steamer and two 21-in.	5 " One Steamer and one 21-in.	5 ". One Steamer or two 2½-in.	4 " One Steamer or two 2½-in.	Two 2½-in.	One 2½-in.	Number and Size of Nozzles.
. 51.35	. 38.00	36.00	3 3.00	33.00	\$28.00	Length from Pavement to Bottom of Con- nection, 5 feet.
1.75	1.25	1.25	1.00	1.00	\$1.00	Add or Deduct for each 6 ins. difference in length from 5 feet.
2.00	2.00	2.00	2.00	2.00	\$2.00	Each 21/6-inch Nozzle Addi- tional.
3.50	3.50	3.50	3.50	3.50	\$3.50	Each Steamer Nozzle Addi- tional.
9.00	6.00	6.00	5.00	5.00	\$4.50	Frost Case Additional
11.00	9.00	9.00	7.50	7.50	\$5.75	Add for Secondary I Stop Valve.
0.1						

THE KENNEDY CATE FIRE HYDRANT.

WITH OR WITHOUT FROST CASE.

DIMENSIONS AND PRICE LIST.

N. 6 or 8 "	M. 4 or 6 "	L. 4 or 6 "	K. 4 or 6 "	J. 4 or 6 "	A. 3 or 4 ins.	Diameter of Pipe Connection.	
,, 6	23 14	2, 6	,, 9	3, 9	5 ins.	Liameter of Stand Pipe.	
,, 9	ى ئ ئ	ۍ د د	4 66	4 "	3 ins.	Valve Opening.	
One Steamer and two 24-in.	One Steamer and one 2½-in.	One Steamer or two 2½-in.	One Steamer or two 21-in.	Two 2½-in.	One $2\frac{1}{2}$ -in.	Number and Size of Nozzles.	DIMENSIONS AND FRICE LIST.
n. 51.35	a. 37.45	36.00	33.00	33,00	\$28.00	Length from Pavement to Bottom of Con- nection 5 feet.	RICE LIST.
1.75	1.25	1.25	1.00	1.00	\$1.00	Add or Deduct for each 6 ins. difference in length from 5 feet.	
2.00	2.00	2.00	2.00	2.00	\$2.00	Each 216-inch Nozzle Addi- tional.	
3.50			3.50	3.50	\$3.50	Each Steamer Nozzle Addi- tional.	
9.00	0.00	6.00	5.00	5.00	\$4.50	Frost Case Additional	

Fig. 15051.

DOUCLAS POWER ROTARY FORCE PUMP ON FRAME.

With Tight and Loose Pulleys.

SIZES, PRICES.

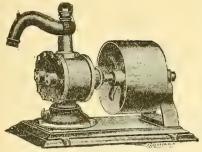


Fig. 1506.

			Capacity per		
Size.	Suction.	Discharge.	Revolution.	Iron.	Bronze.
No 1	134 in.	1 in.	.13 gals.	\$27.00	\$49 00
" 2	114 "	1 **	.14 "	32.00	56 00
3	11/2 11	114 "	.17 ''	38.00	63,00
** 4	11g "	11/2	.27 ''	48.00	78.00
" 5	2 "	2	.36 "	54.00	90.00

Fig. 1506 shows Rotary Pump arranged for power. It is constructed with gears internal, and is widely known to the public. We confidently recommend it as a superior article where this class of Pump is required.

Pulleys on Nos. 1, 2 and 3 are 8 inches diameter and $2\frac{1}{2}$ inches face; on Nos. 4 and 5, 12 inches diameter and $3\frac{1}{2}$ inches face. Balance-wheels for above Pumps, \$1.00, \$2.00 and \$3.00, according to size.

DOUGLAS HORIZONTAL CENTRIFUCAL PUMP.

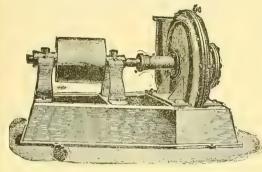


Fig. 1507.

Fig. 1507 shows an Improved Horizontal Centrifugal Pump for use in tanneries, paper mills, breweries, distilleries, etc. This Pump must be set so water will flow into it, unless a check-valve is placed at lower end of induction pipe, in which case it may be set twenty-eight feet above the water. Sent as shown in cut, unless specifically ordered with pulley con opposite end.

DIRECTIONS.

Bolt the frame to the floor; see that the shaft does not bind; run in direction of scroll. If the Pump is set above water, make the pipe and joints tight; fill Pump with water until suction pipe and Pump are full. Estimate the motion by the whole elevation from the bottom of suction to top of discharge pipe. See that stuffing box on bearing outside of Pump is packed.

PRICES, ETC.

Nos.	1_4^3	2	3	4	~ 6	8	10	12	15	18
Iron .	\$50.00	70.00	95.00	130.00	200,00	310.00	395.00	590.00	710.00	1,000.00
Brass	100.00	125.00	175.00	275.00	410.00					

For table showing number of revolutions per minute necessary to raise water to different heights, with different sizes of pumps, see page 436.

DOUCLAS PRIMING HORIZONTAL CENTRIFUCAL PUMP.

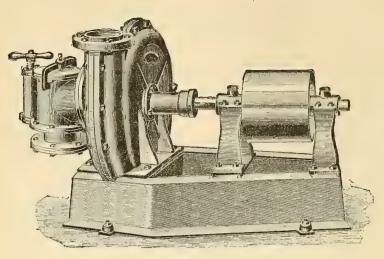


Fig. 1508.

Fig. 1508 shows Horizontal Centrifugal Pump with priming attachment for priming It is a very perfect article, and the attachment is verv convenient where the Pump is placed a distance above the water. There is but one valve in the primer which can be instantly reached by removing cap plate.

DIRECTIONS.

Bolt the Pump to the floor; see that the shaft does not bind; run in direction of scroll. To put this Pump in operation—make tight joints in suction pipe, then work primer, open pet cock in top of scroll, and continue working until water flows out of pet cock and Pump is full, close pet cock and start Pump. Primer need not be used but once where the water is forced above Pump, as it holds its priming. Use discharge pipes full size of bore of Pump, and still larger size suction pipe. See that the stuffing box on bearing outside of Pump is packed.

SIZES AND PRICES.

Nos.		13	2	3	4	6	8	10	12	15	18
Iron	c	\$60.00	85.00	110.00	155.00	240.00	375.00	470.00	600.00	850.00	1250.
Brass		120.00	150.00	210.00	330.00	495.00					

Table showing number of revolutions per minute necessary to raise water to different heights with the different sizes of Pumps.

	Capacity	Size of	Diam.										
	per	Discharge	of										
No. of	Minute.	Pipe	Pulley.			R	EVOLUTI	ons Per	MINUT	E			
Pump.	Gallons.	Inch.	Inch.	6 ft.	8 ft.	10 ft.	12 ft.	16 ft.	20 ft.	25 ft.	30 ft.	35 ft.	40 ft.
$1\frac{3}{4}$	200	$1\frac{3}{4}$	6	425	590	680	725	825	900	975	1050	1120	1170
2	300	2	7	400	450	525	· 575	650	720	780	852	908	960
3	650	3	7	350	400	425	450	500	550	650	775	850	910
4	1250	4	10	275	300	350	400	450	500	600	675	800	890
6	2600	6	12	200	220	240	300	360	420	490	540	580	610
8	4750	8	15	185	200	225	250	310	360	390	425	450	475
10	7500	10	18	166	188	220	245	285	350	360	386	414	436



Tim 1500

"COLUMBIAN COVERLESS" RUBBER BELTING.

We make these belts endless when required, and charge for three feet extra.

For light service order the 3-ply.

The 5-ply belt is equal to single leather.

Belts six inches and under ten inches should be 7-ply. For large belts or those intended for heavy work, order the 9-ply and 11-ply.

		Trig. 16	J U <i>a</i> .				0	5	7	. 9	11
Width.	3	5	7	9	11	Width.	3 Dl	Ply.	Ply.	Ply.	Ply.
	Ply.	Ply.	Ply.	Ply.	Ply.	Inches.	Ply.	\$1.67	\$1.98	\$2.47	\$2.97
Inches.	\$0.08					16	\$1.39		2.25	2.80	3.37
1						18	1.57	1.89		3.13	3.77
14	.10					20	1.76	2.11	2.51		
$rac{1rac{1}{4}}{1rac{1}{2}}$.13		0.4	• 5		22	1.96	2.36	2.80	3.50	4.20
2	.17	.19	.24	D #	0 4	24	2.18	2.62	3.11	3.89	4.67
21	.20	.25	.29	• •		26		2.89	3.42	4.28	5.13
2 <u>1</u>	.25	.29	.31		• 0	28		3 16	3.73	4.67	5.60
31	.29	.34	.41		0 *				4.04	5.05	6.06
4	.34	.38	.47			30			4.30	5.44	6.53
	.37	.44	.53			32			4.67	5.83	7.00
$\frac{4\frac{1}{2}}{5}$.40	.48	.58			34			4.98	6.22	7.46
	.48	.58	.69	.86	0 +	36			5.29	6.61	7.93
6		.67	.81	1.01		38			5.60	7.00	8.40
7	.57		.94	1.17	1.40	40		+ 1		7.39	8.86
8	.66	.78		1.31	1.58	42			5.91		9 33
9	.75	.89	1.06	1.48	1.78	44			6.22	7.77	
10	.84	1.00	1.19		1.97	46			6.53	8.16	9.79
11	.93	1.11	1.31	1.64		48			6.84	8.55	10.26
12	1.01	1.20	1.45	1.80	2.19	50				8.94	10.73
13	1.11	1.31	1.58	1.97	2.37		, '			9.33	11.19
	1.20	1.42	1.71	2.14	2.57	52	_/••	• •			
14	1.20	1.53	1.85	2.30	2.77		DDIO	F LIS	OF		
						ALC: Y					

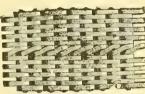


Fig. 1510

This illustration shows in what agraceful, eavy curve the Belt throws itself when run half crossed or at right angles. The entire surface of the Belt hugs the face of the pulley, and therefore is able to transmit its full capacity of power, which no other flat belt can do, or stand the work in such a trying position.

Can be made a bsolutely

Fig.1511. waterproof without extra charge. The Patent Joint or Hinge is not put in Belts narrower than 4 inches unless by special request and at special prices.

AMERICAN PATENT JOINT LEATHER LINK BELTING.

			FFILIAC) =	pril 1, 1898.
	PE	R RUNN	ING FOO	For E	
	Thetory	Sizes	Dynamo.	Hoory	Work —
Width of	Size To in.	Size 2 in.	Size 11 in.	7 in. thick	1 in. thick
Belt			φn 95	\$0.30	\$0.85
1 in.	0.20	\$0.20	\$0.25	.45	.52
13 66	.30	.30	.38	60	.70
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.30 .40 .50	.40 .50 .60 .70	.50	.60 .75	.87
21 11	.50	.50	.63	.90	1.05
8 "	.60	.60	.75	1.05	1.22 1.40 1.57 1.75
Š1 "	.70 .80	.70	.88	1.20	1 10
4 "	.80	.80	1.00	1.35	1.57
41 "		.90	1.13	1.50	1.75
5 44		1.00	1.25	1.65	
51 **		1.00 1.10 1.20 1.40	1.38	1.80	9.10
6 6	-	1.20	$\frac{1.50}{1.75}$	2.10	9 45
17 66	0)	1.40	1.79	$\frac{2.10}{2.40}$	2.80
8 "	ğ	1.60	2.00	$\frac{2.40}{2.70}$	2.10 2.45 2.80 3.15 3.50
9 "	ng		2.25	3.00	3.50
10 "	0 x	ele	2.50 2.75 3.00 3.25	3.30	3.85
11 "	ě	ž	2.10	9.60	4.20
12 "	r sizes should be of thicker Links.	E .	5.00	$\frac{3.60}{3.90}$	4.55
13 "	ne T	be	5.20 9.70	4.20	4.90
14 "	e sp	nld be Links	3.50	4.50	5.25
15 "	S 50	뎔러	3.75	4.80	5.60
16 "	Ze Jii	bo er	4.00	5.40	6.30
18 ''	.E. 2.	8 14	4.50	6.00	7.00
20 "	10	izes shor thicker	5.00	6.60	7.70
22 ''	=	siz	5.50	7.20	8.40
24	Wider sizes should be made of thicker Links.	Wider sizes should be made of thicker Links.	6.00	7.80	9.10
26 "		ાિ	6.50	9.00	10.50
30 "		Δ.	7.50	10.80	12.60
36 "			9.00	10.00	12.00
90	* 077				

WATERPROOF LEATHER BELTING. POSITIVELY NET LIST. SINGLE.

Width, Inches.	Price, per Foot.	Width, Inches.	Price per Foot,	Width, Inches.	Price, per Foot.	Width, Inches.	Price, per Foot.
1 inch.	\$0.07	3 inch.	\$0.24	5 inch.	\$0.42	9 inch.	\$0.77
11 "	.11	31 44	.29	6 "	.51	10 "	.86
2 "	.16	4 "	.33	7	.60	11 "	.95
21 "	.20	41/2 66	.38	8 "	.68	12 "	1.04

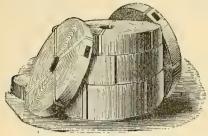


Fig. 1512.

PATENT HYDRAULIC STRETCHED RUBBER BELTING,

In Three Grades,

"EXTRA PARA," "RELIABLE" and "STAPLE"

And ELEVATOR and MAIN BELTS.

All Widths and Plies up to 72 inches.

			123. 10												
Width	Ply.	3 Ply,	Ply.	5 Ply.	6 Ply.	Ply.	8 Ply,	Width,	2 Ply.	Bly.	4 Ply	5 Ply.	6 Ply	7 Ply.	8 Ply.
	-	\$0.09	-					20			\$2.26	\$2.82		\$3.95	\$4.52
$1\frac{1}{4}$	"		.15					22	1.76		2.52	3.15	3.78	4.41	5.04
$1\frac{1}{3}$.13	.17					24	1.96	2.36	2.80	3.50	4.20	4.90	5.60
2	.15	.17	.21					26	2.15	2.60	3.08	3.85	4.62	5 39	6.16
25	.18	.22	.26					28	2.35	2.84	3.36	4.20	5.04	5.88	6.72
3	.22	.26	.31					30	2.55	3.10	3.64	4.55	5.46	6.37	7.28
83	.26	.30	.37					32	2.75	3.35	3.92	4.90	5.88	6.86	7.84
4	.30	.34	.42					34	2.95	3.60	4.20	5.25	6.30	7.35	8 40
4호	.33	.39	.47					36	3.15	3.85	4.48	5.60	6.72	7.84	8.96
5	.36	.43	.52					38	3,35	4.10	4.76	5.95	7.14	8,33	9.52
G	.43	.52	.62	.77				40	3.65	4.35	5.04	6.30	7.56	8.82	10.08
7	.51	.60	.73	.91				42	3.75	4.60	5.32	6.65	7.98	9.31	10.64
8	.59	.70	.84	1.05	1.26			44	3.95	4.85	5.60	7.00	8.40	9.80	11.20
9	.67	.80	.95	1.18	1.42			46	4.15	-5.10	5.88	7.35	8.82	10.29	11.76
10	.75	.90	1.07	1.33	1.60	1.87		48	4.35	5.35	6.16	-7.70	9.24	10.78	12.32
11	.83	1.00	1.18	1.47	1.77	2.06		50			6.44	8.05	9.66	11.27	12.88
12	.91	1.08	1.30	1.62	1.95	2.27	2.60	52			6.72	8.40	10.08	11.76	13.44
13	1.00	1.18	1.42	1.77	2.13	2.48	2.84	54			7.00	8.75	10.50	$12\ 25$	14.00
14	1.08	1.28	1.54	1.92	2.31	2.69	3.08	56		٠.	7.28	9.10	10.92	12.74	14.56
15	1.16	1.38	1.66	2.07	2.49	2.90	3.33	58			7.56	9.45	11.34	13.23	15.12
16	1.25	1.50	1.78	2 22	2.67	3.11	3.56	60			7.84	9.80	11.76	13.72	15.68
18	1.41	1.70	2.02	2.52	3.03	3,53	4.04								

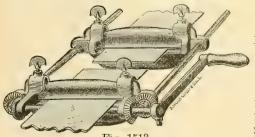


Fig. 1513.

PATENT BELT CLAMP.

For Drawing Belts Together for the Purpose of Lacing Them.

Size.	Each.	Size.	Each.
8 inch,	\$14.00	24 inch,	\$30.00
12 ''	18.00	28 "	34.00
16 "	22.00	32 "	38.00
20 14	26.00	36 "	44.00

The above cut represents one of the most complete and useful articles for those using beits of a width requiring to be drawn together and laced while on the pulleys,

"ELECTRIC" LEATHER BELTING.

Positively Net List.

Width, Inches.	Price per Foot.	Width, Inches.	Price per Foot.	Width, Inches.	Price per Foot.	Width, Inches.	Price per Foot.
1 inch	\$0.14	7 inch	\$1.19	18 inch	\$3,30	36 inch	\$7.70
5 ··	.22	8 "	1.36	20 ''	3,75	40 "	8.60
2	.31	9 "	1.54	22 "	4.20	44 66	9.50
3 "	.40	10 "	1.72	23 "	4.40	48 66	10.40
3 "	.48	11 66	1.89	24 "	4.60	52 "	11.20
34 "	.57	12 66	2.07	26 ''	5.10	56 "	12.10
4	.66	13 "	2.24	28 ''	5.50	60 "	13.00
4½ · · · · · · · · · · · · · · · · · · ·	.75	14 55	2.42	30 4	6.10	64 "	13.90
5 "	.84	15 66	2.64	32 "	6.60	68 "	14.80
6 "	1.02	16 34	2.86	34 "	7.15	72 ''	15.80

These Belts are all double-ply. When desired they are perforated for swift running without extra charge. When ordering state if Belts run at a high or low speed.

BEST OAK TANNED LEATHER BELTING. SINGLE.

Width,	Price	Width,	Price	Width,	Price	Width,	Price
Inches.	per Foot.	Inches.	per Foot.	Inches.	per Foot.	Inches.	per Foot.
1 inch	\$0,14	5 inch	\$0.91	17 inch	\$3.15	34 inch	\$6.29
11 "	.19	$5\frac{1}{2}$ "	1.01	18 "	3,33	36 ''	6.66
1½ " 1½ " 1¾ "	.24	6 66	1.11	19 66	3.52	40 "	7.40
13 66	.29	$6\frac{1}{2}$ ''	1.20	20 "	3.70	44 66	8.14
2 "	.34	7	1.30	21 "	3.89	48 "	8.88
21 14	.39	8 16	1.48	22 "	4.07	50 66	9.25
21 " 21 " 23 " 23 " 24 "	.43	9 66	1.67	23 "	4.26	52 "	9.62
25 66	.48	10 ''	1.85	24 ''	4.44	56 ''	10.36
3 "	.53	11 "	2.04	25 ''	4.63	60 ''	11.10
31 "	.58	12 ''	2.22	26 ''	4.81	64	11.84
31 46	.63	13 "	2.41	27 "	5.00	68 ''	12.58
33 6	.67	14 "	2.59	28 ''	5.18	72 "	13,32
$\frac{3^{\frac{1}{2}}}{3^{\frac{3}{4}}}$ " 4	.72	15 ''	2.78	30 "	5.55	6	
41, 66	.82	16 ''	2.96	32 ''	5.92		

T COMPANY, NEW TORK.

BURNE

DOUBLE BELTS TWICE THE PRICE OF SINCLE.

Intermediate wilths at proportionate prices. Extra heavy Belts extra prices.

ROUND LEATHER BELTING.

Size, inches . Solid, per foot	18	3 T 6	$\frac{1}{4}$	5 1 6	3 30	2	58	3.	78	1
Solid, per foot	\$0.05	.07	.10	.14	.18					
Twisted. "	.06	.10	.14	.18	.22	.30	.36	.46	.60	.72

CUT BELT LACING.

BOTH TANNED AND RAW HIDE.

Size, inch Price per 100 feet		\$1.00	1.25	1.50	1.75	2.00	2.75	3.25	4.00
		 	400 0						

Put up in 100 feet bundles.

LACE LEATHER.

Tanned, per square foot							*
Raw hide, "				0			

HARNESS LEATHER.

Light, about 18 lbs., per lb. Medium, " 20 "							٠	•			*
Medium, " 20 " "						•		٥	۰	•	
Heavy, " 22 " "	۰	•			•	6				t	



READY TO APPLY Fig. 1514.

BRISTOL'S PATENT STEEL BELT LACING.

Packed 100 inches in a box. Assorted lengths.

Following prices are for 100 inches.

FOR LEATHER BELTS.

No.	.00.	For	Split Leather and Extra Light Belts, from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. thic	k			\$1.00
6.6	0.	6.6	" Light Belts, from $\frac{1}{8}$ in. to $\frac{3}{16}$ in. thick.				1.00
6.6	1.	6.6	Ordinary Single Leather Belts, from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. thick.				1.50
6.6	2.	6.6	Extra Heavy and Wide Single Leather Belts, from 1 in. to 5	in. t	hick		2.00
4.6	3.	"	Double Leather Belts, from $\frac{5}{16}$ in. to $\frac{3}{8}$ in. thick				2.50
4.6	4.	66	Heavy Double Leather Belts, from $\frac{3}{8}$ in. to $\frac{7}{16}$ in. thick .		٠		3.00
6.6	5.	66	Extra Heavy Double Leather Belts, from 7 in. to 9 in. thick	ζ.		9	3.50



READY TO APPLY FINISHED JOINT Fig. 1515.

FOR RUBBER, COTTON AND WOVEN BELTS.

Packed 100 inches in a box. Assorted Lengths.

No.	100.	For	r Light	est Rub	ber and	Cotton Be	lts,	from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. thick			\$1.10
4.6	10.	6.6	2-Piv	Rubber	and Cot	ton Belts,	fron	$m \frac{1}{8}$ in. to $\frac{3}{16}$ in. thick			1.10
6.6	11.		3-Ply	66	. 6	46	6.6	$\frac{3}{16}$ in. to $\frac{1}{4}$ in. thick			1.65
6.6	12.	4.4	4-Ply	4 -	4.6	6.6	4.4	$\frac{1}{4}$ in. to $\frac{5}{16}$ in. thick			2.20
6.6	13.	6.4	5-Plv	4.6	66	4.6	4.6	$\frac{5}{16}$ in. to $\frac{3}{8}$ in. thick			2.75
64	14.	6.6	6-Ply	4.6	6.6	6 €	4.4	$\frac{3}{8}$ in. to $\frac{7}{16}$ in. thick	٠		3.30
6.6	15.	6.4	7 and 8	8-Ply Ru	ibber an	d Cotton	Belt	s, from $\frac{7}{16}$ in. to $\frac{9}{16}$ in.			3.85

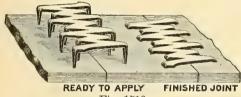


Fig. 1516.

FOR LEATHER, RUBBER, COTTON AND WOVEN BELTS.

BURNET COMPANY, NEW YORK

Packed 100 inches in a box.

Assorted Lengths.

No. 111.	For general use on ordinary Single Leather and Rubber or Cotton Belts, from	
	$\frac{3}{16}$ in. to $\frac{1}{4}$ in. thick, assorted or regular length, from one to three inches.	\$1.65
No. 113.	For general use on Double Leather Belts and 5-Ply Rubber or Cotton Belts,	
	from $\frac{5}{16}$ in. to $\frac{3}{8}$ in. thick, assorted lengths only	2.75
No. 115.	For general use on Extra Heavy Double Leather Belts and 7 or S-Ply Rubber	
	and Cotton Belts, assorted lengths only	3.85

IMPROVED POINTED BELT HOOKS.

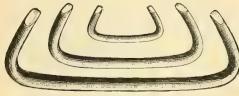
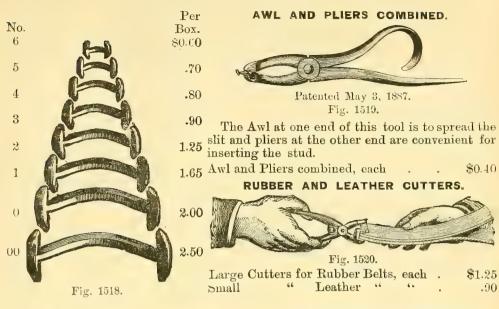


Fig. 1517.

	No.	Per 1000.	No.	Per 1000.	No. P	er 1000.
	16	\$2.00	9	\$4.00	2	\$20.00
	15	2.00	8	5.00	1	30.00
1	14	2.40	77	6.00	$\frac{2^{1}_{2}}{3}$ in.	50.00
1	13	2.60	6	8.50	3 "	60.00
1	12	2.80	5	11.00	33 "	70.00
/	11	3.00	4	14.00	4 "	80.00
	10	3.50	3	16.00		• •

BLAKES IMPROVED BELT STUDS.



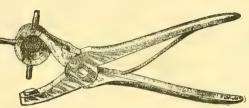


Fig. 1521.

REVOLVING PUNCH.

No. 18, 4 tubes, per doz. $\frac{1}{2}$ dozen in a box. \$18.00

No. 180, 4 tubes, large, per doz. \$30.00 Handles 12 inches long.

Size of Tubes, No. 10, 12, 14, 16. One in a box.

REVOLVING PUNCH.

No. 19, 6 tubes, per doz. \$21.00 $\frac{1}{2}$ dozen in a box.

EXTRA TUBES.

For No. 18, 180 and 19. Per dozen, \$2.00.

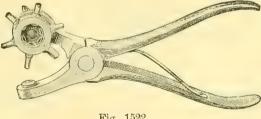
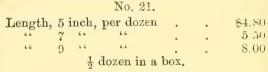
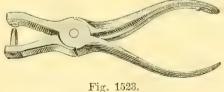


Fig. 1522.

SPRING PUNCHES.





-5- -----

EXTRA TUBES FOR NO. 21 SPRING PUNCHES.

			5 inch,	7 inch,	9 inch,
Per dozen .	•	٥	\$1.75	\$1.90	\$2.10

ROUND PUNCHES. CAST STEEL, FORCED.



Eig. 1524.

					6,7						
Diameter, inches,				10.00	16	<u>5</u>	11.50	$\frac{3}{4}$	12.50	2/8	15
Price per dozen,			\$9.50	10.00	10.50	11.00		12.00	12.50	13.00	13.50
Diameter, inches,				$1_{\frac{1}{16}}$	1낡	1_{16}^{3}	$\frac{1\frac{1}{4}}{22.00}$	1_{16}^{5} 24.00	$1\frac{3}{8}$	$1\frac{7}{8}$	$1\frac{1}{2}$
Price per dozen,			\$14.00	16.00	18.00	20.00		24.00	26.00	29.00	32.00
Diameter, inches,	٠	1	· 13	$1\frac{7}{8}$	$2 2_{i}$		$2\frac{3}{8}$	$2\frac{1}{2}$		$2\frac{3}{4}$ $2\frac{7}{8}$	3
Price cach,	٠	\$2.	95 3.20	3.50	3:90 4.3	4.80	5.40	6.10	6.80 7.	50 - 8.25	9.00

ROUND PUNCHES.

CAST STEEL, FORCED.



Fig. 1525.

No		$00 \\ 2.40		1 to 6 2.00	7 to 9 2.50	10 to 12 3.00	13 to 16 5.00
No 00 Gauge, 52	$\begin{smallmatrix}0&1\\46&40\end{smallmatrix}$	2 3	$\begin{array}{cccc} 4 & 5 \\ 25 & 20 \end{array}$	wist Drill 6 7 8 14 8 2 zen in a Bo	$9 10$ $\frac{15}{64}$ $\frac{1}{4}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	

OVAL PUNCHES. CAST STEEL, FORGED



Fig. 1526.

Price, \$1.00 per dozen advance over Round Punches, Fig. 1525. One dozen in a Box.

BELT BORERS.



Fig. 1527.

Cast Steel, forged, one dozen in a box, per dozen, \$2.50.

BELT BORERS.



Fig. 1528.

Cast Steel, one dozen in a box, per dozen, \$2.00.

BELT AWLS.



Fig. 1529.

Cast Steel, one dozen in a box, per dozen, \$1.75.

TICKET PUNCHES.

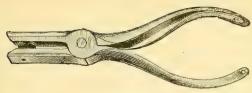


Fig. 1530. Packed $\frac{1}{2}$ dozen in a box.

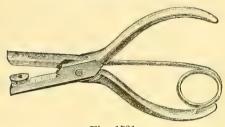


Fig. 1531.
Packed ½ dozen in a box.

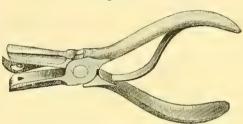
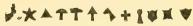


Fig. 1532.

FANCY HOLES.

7 inch Capacity.

With round holes, \$1.00 per dozen less.
DESIGNS.



1 2 3 4 5 6 7 8 9 10 11 12

FANCY HOLES.

3 inch Capacity.

DESIGNS.



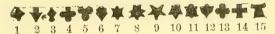
FANCY HOLES.

7 inch Capacity.

With round holes, \$1.00 per dozen less.

Packed $\frac{1}{2}$ dozen in a box.

DESIGNS.



FANCY HOLES.

14 inch Capacity.

Nickel-plated, Per dozen, \$16.50 Polished, 15.00

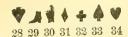
1 inch Capacity.

Nickel-plated, Per dozen, \$13.50 Polished, 12.00 With round holes, \$1.00 per doz. less. Packed ½ dozen in a box.

· Fig. 1533.

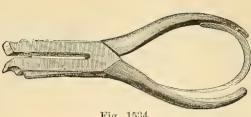
DESIGNS.



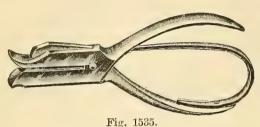


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TICKET PUNCHES.







FANCY HOLES.

14 inch Capacity. Nickel-plated, per doz. . . \$25.00 23.25 Polished, 1 inch Capacity.

Nickel-plated, per doz. . . \$20.00 Polished, 18.25

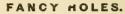
With round holes, \$1.50 per doz. less. Packed $\frac{1}{2}$ doz. in a box.

We can also furnish Fig. 1534 Punches with a capacity of 13 inch and 2 inches. Prices quoted on application, stating quantity desired.

FANCY HOLES.

11 inch Capacity. Nickel plated, per doz. . . \$26.00 Polished, 24.25 1 inch Capacity. \$21,00 Nickel-plated, per doz. . . Polished, 19,25

With round holes, \$1.50 per doz. less. Packed \(\frac{1}{2} \) doz. in a box.

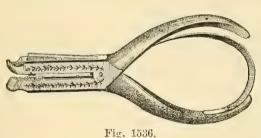


1 inch Capacity.

Nickel-plated, per doz. . \$26,00 Polished, 24.00 With round holes, \$1.50 per doz. less.

Packed $\frac{1}{2}$ doz. in a box.

This Punch is also furnished with Reservoir that opens automatically when Punchings are well packed. Price extra Nickel-plated, \$2.00 per doz.



DESIGNS.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

€ ▲ □ 本 ♥ å å å å å å å å 16 17 18 19 20 21 22 23 24 25 26 27 28 29



45 46 47 48 49 50 51 52 53 54 55 56 57

ABCDFIJKLPSTVWZ

58 59 50 61 62 63 64 65 66 67 68 69 70 71 72

\$0123456789X

73 74 75 76 77 78 79 80 81 82 8384

Any design not represented here made to order at reasonable price.

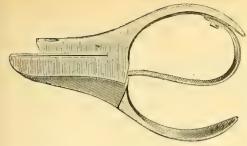


Fig. 1537.

TICKET PUNCHES.

FANCY HOLES.

1 inch Capacity.

Nickel-plated, . Per dozen, \$16.50 Polished, 15.00

With round holes, \$1,00 per dozen less.

Packed 1 dozen in a box.

DESIGNS.



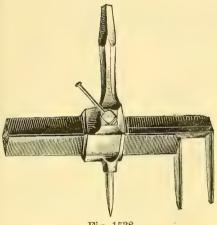


Fig. 1538.

WASHER CUTTERS.

The cutters of this tool are made of the best steel, and fastened with one screw only, which holds them better in the required place than any other washer cutter with square or flat cutters and more screws. This tool can in a moment be changed into a socalled double cutter.

No. 31. Large, . Per dozen, \$14.00 66 31. Usual, 11.00

No. 31. Large. Will cut washers to 8 inch diameter.

66 31. Will cut washers to 6 inch Usual. diameter.

dozen in box.



Fig. 1539.

LACE CUTTER.

It is made to cut any width from 3-16 to 3 inch by an adjustable nickel-plated gauge and thumb screw.

Per dozen, \$6.00

MORAN'S IMPROVED STEEL BELT COUPLINGS.



Fig. 1540.

Size, inches, Per dozen,	\$3.00	3.00	$2.\overline{\overset{3}{16}}$	$2.5^{379}2.50$	2.00	2.50	$\frac{\frac{1}{3}\frac{1}{5}}{3.00}$	3.00	3.50
Size, inches, Per dozen,	\$4.00	5.00	6.00	7.50	9.00	13.00	1 18.00	1 t 22.00	$\frac{1\frac{1}{4}}{26.00}$

RIVET SETS.

(Cast-steel, Forged.)



Fig. 1541.

No										
For Belt Rivets, No.	1	2	3	4 & 5	6 & 7	8	9	10 & 12	13	14
Per dozen	\$9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4 50

SINGLE SPEED INDICATOR.

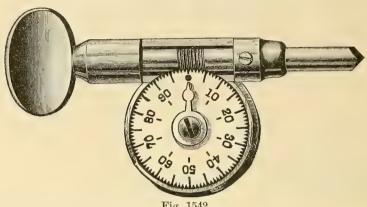


Fig. 1542.

Single Speed Indicator, price, each

\$0.75

WEISS DOUBLE SPEED ALARM INDICATOR.

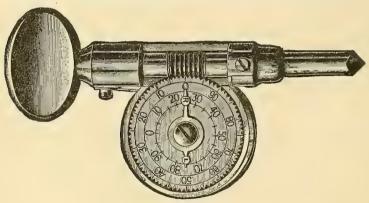


Fig. 1543.

Fig. 1543 shows the exact size of the Indicator and front view. The bell rings when either hand is at its zero and afterwards at every hundred revolutions of the spindle. A shaft turning to the left is registered by the shorter hand, stamped L and the inner dial. A shaft turning to the right by the longer hand marked R and the outer dial. It is always in the proper position to be applied to the shaft and requires no turning to zero. Price, each, \$1.50.

SEAL PRESS.

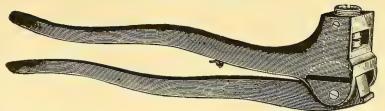


Fig. 1544.

This Press we furnish with Large Dies to press Hemp or Metallic Cording Seals; also with Small Dies to press any size of Lead Seals and Wires in use.

Price, including the Engravings on Dies, \$4.00 Each.

CORDING LEAD SEAL.

Used by the United States Government for sealing packages in bond.



No. 1, \$3.00 per 1000.

No. 2, \$4.00 per 1000.



Fig. 1547.

Fig. 1548.

WIRE LEAD SEALS.



Fig. 1549.

inch Size,
 2.75 per 1000.
 inch Size,
 2.25 per 1000.

Fig. 1550.

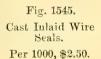


Fig. 1546.

Cut showing Cast Inlaid Wire Seal before being Pressed.



Fig. 1551.

 $\frac{1}{2}$ inch Size, \$2.00 per 1000.





Fig. 1552.

PRICES STRAND TWISTED WIRES.

		e Flat Iron		,	Perio	., \$0.15 .15	5 "	rmnea	wire,		Per lb.	.22
83	1 19	46	4.4		6.6	.15	6 ''	4.4	4.6		4.6	.20
2	6.6	66	6.6	On Spools,	\$1.75 per	1000 ft.	6 "	66	" On	Spools,	\$2.50 per 3	1000 ft.

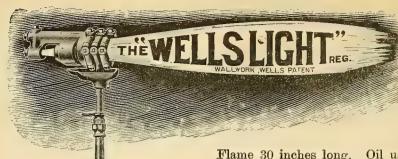
PRICES LAID WIRE CORDS.

6-	Ply Tinned,	Braided	l, .	Per lb.,	\$0.25	3-Pl	y Imp'	d Iron	Laid,	• 1	Per lb.,	\$0.25
4		6.6		6.6	.30	2 "	6	. 6	6.6		4.4	.30
_			6-Plv '	Tin Braide	d. on	Spools.	\$3.00	per 1	000 feet.			

PRICE SEALS COMPLETE WITH WIRES. PER 1000.

No.	1,	50	Inch	Seal,	with	6-	Ply	Tinned	Wire.	7 In	ches	, .		\$
4.6	1.	5.	6.4	4.4	4.4	6	4.4	4.6	4.6	10	6.4			
6.6	3,							6.6						
66	3.	1	4.6	4.6	6.6	6	6.6	4.4	4.6	10	4.4			
	1.		1.4	66	6.6	3	6.6	Iron A	nealed	Wire	. 7	Inches,		
44		- 25		4.6						6.6		66		
	3.		4.6	4.6	Lai	3	6.6	6.6	6.6	4.4	7	6.6		
	3.		6.6					6.6	6.6	6.6	10	6.6		
	0.	2				9	-		1			i		

These Seals cannot be stripped.



2,000
Candle Power.
Price
Complete,

\$100.00

No. 3.

Flame 30 inches long. Oil used, one gal. per hour. Size of Tank, 18x24.

This tank is of Steel Boiler Plate (galvanized) with handles on each side. It can be carried by two men, or, by using the carriage illustrated below, may be moved about by one person.

It holds sufficient oil to burn 14 hours, but may be refilled while burning.

EXTRA BURNERS.

For No. 1 Light, \$10.00 For No. 3 Light, 12.00



Fig. 1554.

Fig. 1553.

No. 1.
800 Candle Power.

Flame 15 inches long. Oil used, $\frac{1}{2}$ gal. per hour. Size of Tank, 14x16.

It holds sufficient oil to burn 8 hours but can be refilled while burning.

Fig. 1554 shows burner of No. 1 Light. The Carriage shown is made to pick up any No. 3 Lamp.

Price of Carriage, \$18.00.

No. 1 Burners to work with No. 3 Lights are very useful, as a light of 800 C. P. is often sufficient in clearing up foundries, and in machine shops, and enables users to have either 800 or 2000 C. P light as desired with a No. 3 Light.

AUTOMATIC ILLUMINATING TORCHES.

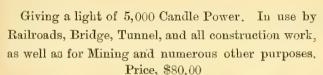
No. 7.

FOR KEROSENE.

No. 6.

fectly safe.

Price, \$60,00



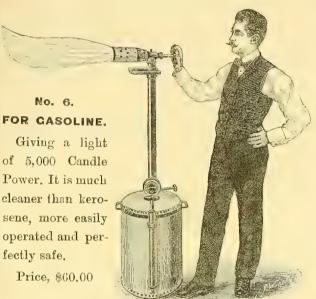
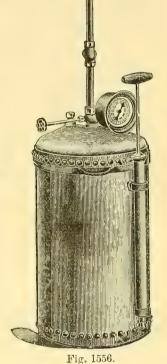


Fig. 1555.



SMITH'S BLOW TORCH.

BEST AND CHEAPEST IN THE MARKET.

AUTOMATIC.

Price each, \$5,00

For Painters, Plumbers, etc., and for any purpose where a hot, Smokeless Flame is required.

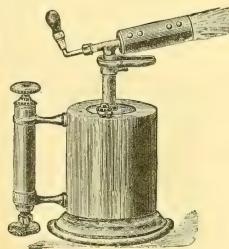


Fig. 1557.

BLASTING MACHINES.



"PULL UP" BLASTING MACHINE.

Made in Three Sizes.

No.	3 will	fire	20 to	30 holes,	•	•	۰	٠	٠	Price,	\$25.00
No.	4 will	fire	40 to	50 holes,			•	•		66	50. 00
No.	5 will	fire	75 to	100 holes,						66	75.00

Fig. 1558.



Fig. 1559.

UNITED STATES STANDARD BLASTING MACHINE.

Made in Two Sizes.

No.	3 will fire 1 to 20 holes,		•	Price, \$25.00
No.	4 will fire 40 to 50 holes,			" 50.00

The above machines are the strongest and most powerful ever made for Electric Blasting. They are especially adapted for submarine blasting, large railroad quarrying and mining works.

VICTOR BLASTING MACHINE,

One Size Only,

Weighs only 15 pounds; adapted for prospecting, stump



blasting, well sinking, etc.

Victor Leading Wire Reel											\$4.00
Connecting Wire Holder								1			2.00
Battery Testing Lamp, with Stand Com	plete)									3.50
" " without Stand ."							-		Ī		1 75
Connecting Wire (on 2 lb. Spools)							_	Ū	Ċ	40c :	ner lh
Leading Wire (in large coils)							Ĭ	Ċ	•	40c.	per lb.
Leading Wire (measured to exact length	oro	ler	ed)			•	•	•	•.	100,]	nor ft
Insulating Tape (half lb. packages) .			,		•	• •	•	•	•	#1 FO	per 11.
Instituting Tupe (hart to, packages)		•	•	0						DT.90	per 10.

PRICE LIST.

No. 1 will fire 5 to 8 holes, .

TROISDORF GERMAN BLASTING CAPS

Tri Strei	
Per	1000
\$5	50

Quadruple Strength. Per 1000 \$6.00 Quintuple Strength. Per 1000 \$7.00.

Special Price in case lots of 25,000 each.

TAPE FUSE.

Hemp. Per 1000 feet. \$2.80 Cotton.
Per 1000 feet.
\$3,10

Single Tape.
Per 1000 feet.
\$4.15

Double Tape. Per 1000 feet. \$5.15

Price, \$15.00

VICTOR ELECTRIC PLATINUM FUSES.

IMPROVED WATERPROOF INSULATION.

PATENTED DECEMBER 11, 1888.

Superior to all others for exploding any make of dynamite or blasting powder. Each fuse folded separately and packed in neat paper boxes of 50 each. All tested and warranted. Single and double strength, with any length of wires.

Each fuse connected for the blast should be of equal resistance, to insure a simultaneous explosion; consequently fuses made by different manufacturers should not be used together in the same blast. Each Victor Fuse is warranted equal in resistance. This important advantage is not claimed by other manufacturers.



Fig. 1562.

The Fuses are packed by folding each separately and putting them up in strong paper boxes of 50 each, which is a great protection against dampness or change of climate, as well as a convenience in handling.

							Ord	LE STRENGTH. inary Quality. al to Quintuple Force.	DOUBLE STRENGTH. Extra Quality. Equal to Double Quintuple Force.
								Per 100.	Per 100.
4	et wires							\$3.00	\$3.75
6	46					•		3.54	4.29
8	46							4.08	4.83
10	66							4.62	5.37
$\frac{10}{12}$	66		•					5.16	5.91
14	66	•	-					5.70	6.45
16	66	•	•	*	- 1			6.24	6.99
18	66	•	٠	•	•	•	•	6.78	7.53
	66	•	-	-	•	•	•	7.32	8.07
20			•	•	•	•			
22	6.6							8 32	9.07
24	66							9.32	10.07
$\overline{26}$	66							10.32	11.07
28	6 6	,						11.32	12.07
30	6.6		·					12.32	13.07
00									

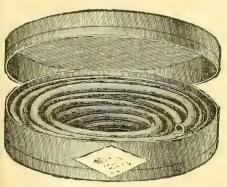
RUBBER TUBING.

PLAIN OR RIBBED.

			- 11	1410000		
	Int. Diam.	Pe	r ft.	Int. Diam.		Per ft.
	l inch	. \$0	0.08	$\frac{1}{2}$ inch		\$0.25
	3		.12	<u> </u>		.30
	10 66		.16	3 66		.35
	5 66		.18	1 "		.45
	3 44		.20			
	Mada in u	ny thiekne		wall. We c	กระระ	n stoel-
	three	grades—l	icht.	medium and	heav	V.
The state of the s	titie	5	5-10,			5

CLOTH INSERTION.-White or Red.

Int. Diam.	Per ft	Int. Diam.	Per ft.
1 inch	\$0.10	1 inch	\$0.28
1/8 inch	.14	<u>5</u>	.33
7 ((.18	3 44	.38
1 0 · ·	.20	1 "	.50
3/8	.23		



VICTOR ELECTRILEGE

1561.

Fig. 1563.

"SCIOTO" RAILROAD OR CANAL BARROWS.

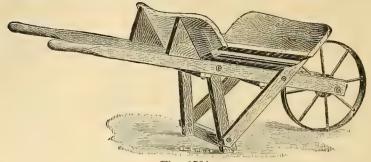


Fig. 1564.

With No. 13x Lewis Steel Spoke Wheel. Painted Black.

Diameter of wheel, 16% inches; tire, 13x3 inches; spokes, 3 inch round; 5 inch axle bolt.

Knocks down completely for shipping and is easily set up.

Weight per dozen, 594 pounds.

Price, per dozen, . . .

FIG. 1565.

Same as above, except furnished with Jacobs' No. 2 Wood Wheel, Unpainted. Diameter of wheel, 17 inches; spokes, $\frac{7}{8}x1$ inch; tire, $1\frac{1}{8}x\frac{7}{16}$ inches; $\frac{1}{2}$ inch axle bolts.

Weight per dozen, 576 pounds.

Price, per dozen,

THE "BOSS" BOLTED R. R. OR CANAL BARROW.

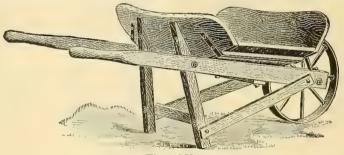


Fig. 1566.

With No 13-x Lewis Steel Spoke Wheel. Painted Black.

Diameter of wheel, 16½ inches; tire, 13x3 inches; spokes, 3 inch round; inch axle bolt.

Weight per dozen, 650 pounds.

Price, per dozen, . .

FIC. 1567.

Same as the above, except furnished with Jacob's Patent No. 2 Wood Wheel, Unpainted.

Diameter of wheel 17 inches; spokes, \(\frac{7}{2}\text{x1 inch}\); \(\frac{1}{2}\text{ inch axle bolt.}\) Painted Weight per dozen, 600 pounds,

Price per dozen, . . .

SAWDUST, TANBARK OR STABLE BARROW.

Not Illustrated.

For Mills, Tanneries, Stockmen, and Livery Stables. Double Frame Removable sides. Wood wheel, 21 inches diameter.

Weight, 80 pounds. Capacity, 10 cubic feet. Painted green and varnished.

STEEL TRAY WHEELBARROWS.

SOLID STEEL TRAYS AND STEEL-SPOKE WHEELS.

For Mills, Furnaces, Farms and Railroads.

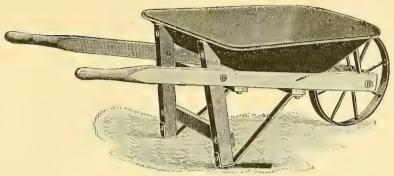


Fig. 1568.

TABLE OF DIMENSIONS, CAPACITY AND WEIGHT.

No.	Length on Top,	Width on Top.	Depth at Wheel.	Depth at Handle.	Greatest Length.	Greatest Height.	Capacity.	Weight.	Price.
Fig. 1569	32 in.	29 in.	7 in.	5 in.	65 in.	19 in.	3 cubic ft.	$57\frac{1}{2}$ lbs.	*
Fig. 1570	$35\frac{1}{2}$ "	$28\frac{1}{2}$ "	81 "	6 "	65 ''	$20\frac{1}{2}$ "	4 " "	59 ''	
Fig. 1571	411 "	33 ''	111 44	8 "	65 ''	24 "	6 " "	66	

No. 13-X Lewis Patent Round Spoke Steel Wheel, $16\frac{1}{2}$ inches diameter; tire $1\frac{3}{8} \times \frac{3}{8}$ inches. Tray and wheel painted black; frame, brown. All Trays No. 15 Steel.

THE PAN-AMERICAN STEEL TRAY BARROW. SPECIALLY DESIGNED FOR THE EXPORT TRADE.

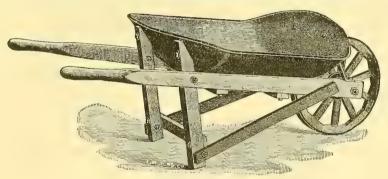


Fig. 1572.

With Jacobs' Patent No. 2 Wood Wheel.

The Tray of No. 14 Best Steel Pressed from a single sheet, without joint, seam or rivet. Size of Tray, 32 inches long; 33 inches wide; 11 inches deep at wheel end; $7\frac{1}{2}$ inches deep at handle end. Wood wheels, 17 inches diameter; tire, $1\frac{1}{8} \times \frac{8}{16}$ inches.

Price. . . . *

FIG. 1573.

Same as above, except furnished with Lewis Patent Steel Wheel, 16 inches diameter; tire, $1\frac{3}{8}$ x $\frac{3}{8}$ inches; Steel Spokes, $\frac{3}{8}$ inch round.

Price, . . . *

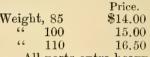
YORK

STEEL BARROWS.



FOUNDRY BARROWS.

No.			F	1g. 1574. Tra		Hand	lles.	
1.	3 (eub' c fe	et.	No.	13	No.	10	Wei
2.	3	66		6.6	12	66	10 .	6
3.	4	66		66	12	66	10	6
Whe	la	16 in	diam	eter.	S17	spension	Brace	S



All parts extra heavy.

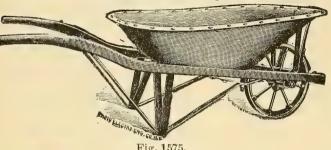


Fig. 1575.

SMELTING FURNACE BARROW. No. I.

Capacity 325 lbs.

Tray, Handles, Weight, No. 12. No. 10. 130 lbs.

Price, \$25.00

Wheels 16 in. diam. All parts extra heavy. Suspension Braces.

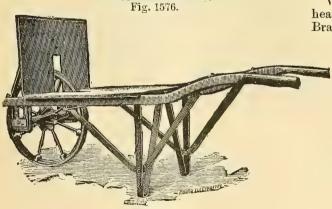
PIG METAL INCOT BARROW, C No. I.

Bed. Handles, Weight, No. 12. No. 10. 120 lbs.

Price, \$18.00

Wheels 16 in. diam. Extra heavy Bed, Front and Front Braces of one Plate.

Suspension Brace.



Suspension Braces, largely used, and has no superior

BRICK BARROWS.

Fig. 1577.

				Be	d.	Har	dles.	77	Vheels.	Weight	t.	Price.
No. 1.	Solid Bed,	Rigid B	earings.	No.	14	No.	10	16 in.	diameter	95 poi	unds.	\$14.00
	Open "			6.6	14	6.6	10	20 in.	6.4	115	6.6	17.00
	66 66			6.6	14	66	10	20 in.	4.6	135	6.6	20.00

STEEL BARROWS.

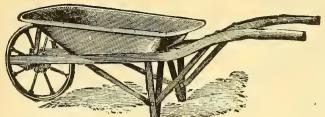


Fig. 1578.

MINING BARROW.

No. D, Export Barrow Capacity, 3 cubic feet. Weight, 60 pounds. Tray, No. 16 Steel. Size of Tray, 331 inches long, 29 inches wide, 63 inches deep.

Price, \$10.00.

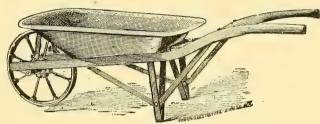


Fig. 1579.

MINING BARROWS.

No.		pacity.	Dec 2008	ay.		dles.		eight.	Price.
A1.	3 cu	bic feet.	No.	15	No.	12	68 p	ounds.	\$11.50
A2.	3	66		14	6.6	12	74	66	12.00
A3.	3	44	66	13	66	12	80	6.6	12.50
A4.	3	66	6.6	12	66	10	86	6.6	14.00
A5.	4	6 6		12	6.6	10	92	66	15.00
A6.	4	46		10		10	130	6.6	22,00
Wheels, 16 inches diameter.									

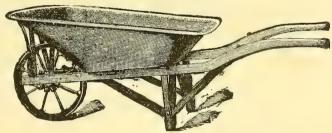


Fig. 1580.

COAL BARROWS.

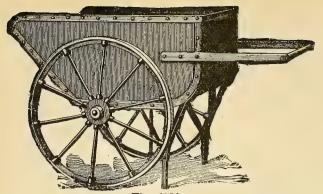
No.	Capasity.	Tray.	Handles.	Weight.	Price.
B1.	200 pounds.	No. 14	No. 12	78 pounds.	\$14.50
B2.	250 " "	" 14	" 12	84 "	15.00
B3.	325 "	" 14	" 12	90 "	16.00
$B3\frac{1}{2}$	325 "	" 12	" 10	105	20.00
B4.	400 "	" 11	" 10	130 "	22.00
		THE RESERVE AS A SECOND	1 1 01 1		

Wheels, 16 inches diameter.

Each Barrow of the above is put up with Bolts. The parts of Barrows of same size are interchangeable and loss or breakage of any part is readily replaced. The Barrows can be taken apart for shipment, packed compactly, and again set up without difficulty.

The Axles are stationary, being threaded and screwed into the Brackets, thus bracing the handles and becoming bearings for the wheels. In ordering state whether "Standing" or "Knocked Down" for shipment.

TWO-WHEELED



STEEL

BARROW.

Coal or Coke.

IN BORNET COMPANY, NEW YORK.

		Fig. 1581.			
No.	Cubic F	Lbs. Coal.	Bottom.	Sides.	Price.
1	8	400	No. 12	No. 14	\$40.00
2	10	500	" 12	" 14	45.00
3	12	600	" 12	" 14	47.50
4	16	800	" 10	" 12	50.00
5	20	1000	·· 10	" 12	52.50

Perfectly balanced, is light running, and has no equal. Wheels, 24 to 30 inches diameter.

TUBULAR STEEL WHEELBARROWS. WITH WHEEL CUARD.

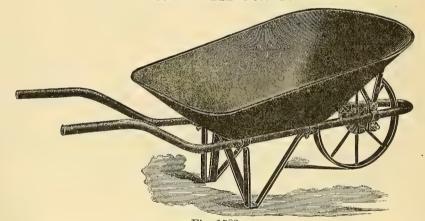


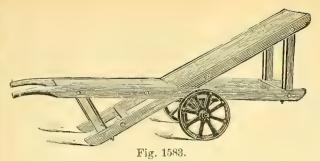
Fig. 1582.

TABLE OF DIMENSIONS, CAPACITY, WEIGHT AND PRICE.

No.	Gauge of Steel in Tray.	Length ou Top.	Width on Top.	Depth at Wheel.	Depth at Handle.	Greatest Height.	Cubic Capacity.	Weight.	Price, Each.
4	15	32 in.	29 in.	7 in.	5 in.	19½ in.	3 ft.	70 lbs.	\$10.75
$4\frac{1}{2}$	14	32 "	29 "	7 "	5 ''	19} ''	3 "	75 ''	11.50
5	14	$35\frac{1}{2}$ "	281 "	81 4	6 "	21\frac{1}{2} "	4 "	78 "	13.50
6	14	32 "	29 ''	7-16	5 "	$19\overline{i}$ \cdots	3 ''	83 ''	12.25
7	14	351 "	281 "	81 "	6 "	213 ''	4 "	88 "	14.25
8	12	32 ''	29 "	7	5 "	19‡ ''	3 "	95 "	14.00
9	12	$35\frac{1}{2}$ "	281 "	81 "	6 "	215 "	4 "	98	16.00
10	13	413 "	33" "	115 "	8 "	253 "	6 "	109 ''	20.00
13	15	$41\frac{7}{2}$ "	33 "	$11\frac{7}{2}$ "	8	$25\frac{7}{2}$ "	6 "	93 "	18.50

Greatest Length of all Barrows, 67½ inches. Greatest Width of all Barrows is width on top of Tray.

Nos. 4, 4½ and 5 are Dirt Barrows. Nos. 6 and 7 are Coal or Mining Barrows. No. 7 has Coal capacity 215 to 250 lbs. Nos. 8 and 9 are Foundry Barrows. No. 10, Coal Barrows. No. 12, Coke or Charcoal Barrows. Cut shows No. 12 Coke Barrow.



LICHT BACCACE BARROW.

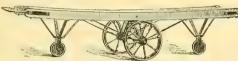
A cheap and handy Barrow for use at small stations.

Frame, best seasoned ash or oak: length, 7 feet; width, 2 feet. Not ironed on top. Painted green and varnished. Cast iron wheels. 14 inches diameter, $2\frac{1}{2}$ inch face. Axle. 1½ inch round steel, 3 feet long. All irons painted black.

Weight, 200 pounds. Price. \$25.00

BACCACE BARROWS. PAINTED VERMILION. IRONS BLACKED.

Improved Staggered Wrought Spoke Wheels.



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Fig. 1584. Curved Pattern.

No.	Length, Feet.	Width, Inches,	Wheels—Floor to top of Platform, Inches.	Wheel, gibt.	Price.
1	8	24	231	20x2 345	\$40.00
2	10	27	$23\frac{\bar{1}}{2}$	20x2 356	45.00
3	13	29	24^{-}	20x2 425	55.00

Height over

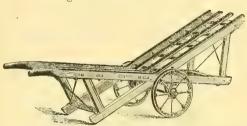


Fig. 1585. Sloping Back Pattern.

PAINTED CREEN, IRONS BLACKED

			,				
			—Heig	ht at-	`	W	
No.	Length, Feet.	Width, Inches.	Rear Leg, Inches	Leg,	Wheel, Inches.	Weight.	Price.
1	7	24	191,	16	$17\frac{1}{2}x2$	217	\$33.00
2	$\frac{9\frac{1}{3}}{9\frac{1}{3}}$	27	24	$21\frac{1}{2}$	20 x2	300	40.00
3	$9\frac{1}{2}$	30	25	$21\frac{1}{2}$	20 x2	340	-55.00

All wheels on these Barrows are bored true to centre, and axles turned as carefully as a buggy axle.

BACCACE WACON.

With Improved Staggered Wrought Spoke Wheels, Steel Axles.

Wrought Iron Fifth Wheel, 20 inches in diameter. Front Wheels, 20 inches in diameter; Rear Wheels, 22 inches.

No.	Length.	Width.	Dash.	Price.
1	7 ft.	26 in.	28 in. long.	\$70.00
2	10 ft.	27 in.	35 in. long.	80.00
3	12 ft.	32 in.	44 in. long.	90.00



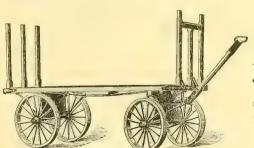


Fig. 1586.

Fig. 1587.

EXPRESS WACONS.

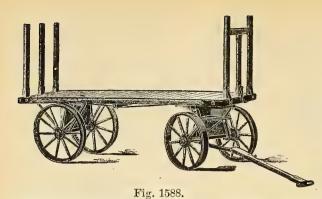
Improved Pattern.

Express Wagon with "Sarven Patent" Wood Wheels, Steel Axles. Also furnished with "K. & J." Wood or American Pattern Iron Wheels.

Wrought Iron Fifth Wheel, 20 inches in diameter; Front Wheels, 28 inches in diameter; Rear Wheels, 31 inches in diameter; Platform, 10 feet long, 39 inches wide, 35 inches high. Weight, 670 lbs.

> Price, \$100.00

These Wagons are of new and improved pattern. All material carefully selected. Thoroughly ironed and braced; well finished; painted vermilion and green, and striped and varnished.



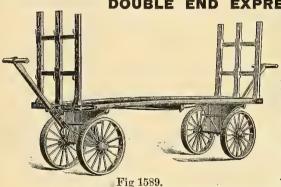
EXPRESS WACON. TUBULAR AXLES.

With K. & J. Improved Wood Wheels.

Platform, 10 feet long by 40 inches wide by 35 inches high; painted green.

Front wheels, 28x31 inches. Rear wheels, 31x31 inches.

Steel fifth wheel, 20 inches diameter. Wheels and running gear painted bright red. Weight, 590 lbs. Price, \$90.00. DOUBLE END EXPRESS WACON.



Wrought Iron Fifth Wheel, 20 inches in Diameter.

STEEL AXLES.

Size, 38½ inches by 12 feet; height from floor, 34 inches. Standards, 45 inches high, and furnished with check-hooks.

"SARVEN PATENT" WOOD WHEELS: 28 inch diameter; tire 31x1 inches.

Weight, 750 pounds.

Price \$125.00. EXPRESS WACO

NEW ENGLAND

Fig. 1590.

STEEL AXLES. CAST FIFTH WHEEL.

The demand for a smaller Express Wagon, of lighter and cheaper pattern, led to make this new wagon, which is very serviceable at small stations, where baggage traffic is not Strongly constructed of the best material. Now made with Improved Steel Stake Pockets, holding stakes perfectly rigid and doing away with end straps. Platform. 7 feet long, $2\frac{1}{2}$ feet wide, 22 inches high. End Racks 3 feet high, with three check-

hooks on each. Improved staggered wrought spoke wheels 17½ inches in diameter, Steel axles 1¹/₈ inch square. Painted vermilion and green and vareels blacked. Weight, 375 pounds. Also made with 20 and 22 inch nished. Wheels blacked. wheels. Price, \$60.00.

En .	
	Fig. 1591

We also make to order special sizes, and Marine and Railway Skids, heavily ironed at both ends, as shown in cut.

Price, Light Pattern, per ft. \$1.00 Heavy 1.25

2KII	<i>,</i> 5.			
Length,		Side Rails,	No. of	Weight in
Feet.	Kind.	Inches.	Cross-Bars.	Lbs., Ea.
6	Light.	$1\frac{1}{4}x2\frac{3}{4}$	2	24
6	Heavy.		2	36
7	Light.	$1\frac{1}{4}x2\frac{3}{4}$	2	28
7	Heavy.		2	40
8	Light.	$1\frac{1}{2}x2\frac{5}{4}$	3	30
8	Heavy.	$1\frac{3}{4}x3\frac{1}{2}$	3	48
9	46	$1\frac{3}{4}$ x $3\frac{7}{2}$	3	52
10	66	$1\frac{3}{4}$ x $3\frac{3}{4}$	3	58
12	66	13x4	4	90
459	1			

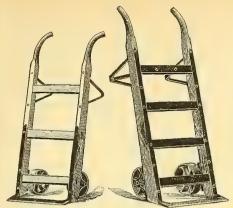


Fig. 1592. HALF IRONED.

Fig. 1594.

HALF STRAPPED.

Fig. 1593.

Fig. 1595.

FULL STRAPPED.

WAREHOUSE AND STORE

Axles Turned and Wheels Bored. Steel Nose, Side Straps, Axle and Legs.

WESTERN PATTERN. HALF IRONED.

	T	_			THE OF	IEU.
	Leng	th of		Diameter		
	$_{\rm Han}$	dle.	Width.	of Wheel.	Weight.	
No.	Ft.	In.	Inches.	Inches.	Pounds.	Data
0	8	6	19		Tounds.	
-1				Ug	42	\$6.00
1	3	11	19	$\frac{6\frac{7}{8}}{\ell \frac{7}{8}}$	44	
2	4	4	20	200		7.00
2				T_A^2	56	9.00
- 3	4	8	22	83	77	
				04	77	13.00
			FULL	IRONED.		
0	0					
0	3	6	19	67	49	dhiry and
1	3	11	19	0.7		\$7.00
7			19	$rac{6rac{7}{8}}{6rac{7}{8}}$	50	8.00
3	4	4	20	17/3		
3				<u>* 4 a</u>	66	10.50
0	4	8	22	83	87	15.00
				-4		10.00

BOSTON PATTERN.

Steel Nose and Side Straps. Steel Ayle

				PORCED POET	app. Die	ei aaie	
			HALF	STR	APPED.		
	Len		Width	Width			
	0		at	at Up	Diameter		
		dle.	Nose.	per Bar.	of Wheel.	Weight.	
No.	Ft.	$_{\rm In}$	Inches.	Inches,	Inches.	Lbs.	Price.
1	4	2	12	18	$6\frac{7}{9}$	43	
2	4	6	13	19	73		\$6.50
					74	55	8.50
3	4	9	$14\frac{3}{4}$	$20\frac{1}{2}$	$8\frac{3}{4}$	85	11.00
4	5	6	15	21 ³	$10\frac{3}{4}$		14.00
5	6	1	$15\frac{1}{8}$		104		
0	· ·	1	108	$23\frac{3}{4}$	12		17.50
			FULL	STRA	PPED.		
1	4	2	12	18		40	
ñ					$6\frac{7}{8}$	48	\$7.50
2	4	6	13	19	$7\frac{3}{4}$	60	10.00
2 3	4	9	$14\frac{3}{4}$	$20\frac{1}{5}$	83	90	12.50
4	5	6	15	$21\frac{3}{4}$	103		
5	6			214	$10\frac{3}{4}$	98	15.50
		1	$15\frac{1}{8}$	$23\frac{3}{4}$	12	120	18.50
6	6	4	$16\frac{1}{4}$	25	12	135	24.00
			.1		14.74	TO0	~4.UU

Boston Pattern Trucks, wheels inside, 10 per cent. advance over above prices.

Fig. 1596.

NEW YORK PATTERN.

Steel Nose and Axle.

			Width				
Len	gth	Width	at	Diameter	•		
0	f	at	Upper	of		Half	Full
Han	dle.	Nose.	Bar.	Wheel.	Weight.		Strap-
Ft.	In.	Inches.	Inches.	Inches.	Lbs.	ped.	ped.
4	0	13	16	6	36	\$4.85	\$6,50
4	5	$14\frac{3}{4}$	$19\frac{1}{2}$	$6\frac{7}{8}$	54		8.00
4	7	$15\frac{3}{4}$	$21\frac{1}{4}$	0	66		9.00
4	11	16	^		80		10.00
5	4	174	-				11.50
5	8	$18\frac{1}{4}$	$24\frac{1}{4}$	$10\frac{3}{4}$	120	11.50	13.50
	0 Han Ft. 4 4 4 5	4 5 4 7 4 11 5 4	of at Handle. Nosc. Ft. In. Inches. $\frac{4}{4}$ 0 13 $\frac{4}{4}$ 5 14 $\frac{3}{4}$ 4 11 16 5 4 17 $\frac{1}{2}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

Weights given are for half strapped.

This Truck meets the demand for a lighter and cheaper Truck than Boston or Western Pattern.

RAILROAD, STEVEDORE OR CARGO TRUCK.

STEEL NOSE AND CROSS BARS. STEEL AXLE.

The strongest and best Truck made for Railway and Steamer use. Heavily ironed. Four curved steel bars, the wide one at nose extending as a shield over wheels. All steel parts thoroughly bolted on. Axles turned, wheels bored.

Length of Handle, 5 feet; width of nose, 17 inches; width at upper bar, $20\frac{1}{2}$ inches; wheels, $9\frac{3}{4}$ inches in diameter, 3-inch face; axle, $1\frac{1}{4}$ inches square; weight, 125 lbs.

Price, . . . \$24.00



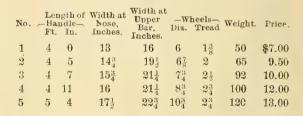
Especially designed for the use of transportation companies in handling freight. The strongest and best Truck made for stevedoring and wharf-boat use. Truck solidly bolted together; heavily ironed. Four curved steel crossbars, with an extra straight cross-bar under upper one. Cross braces on legs. Axles turned. Wheels bored.

Length of handle, 5 feet; wheels, 12 inches in diameter, 3-inch face; nose, 9 inches long; width at nose, 17 inches; width at upper bar, 21 inches; axle, 14 inches square; weight, 140 lbs.

Price, . . . \$26.00.

BARREL TRUCK. NEW YORK PATTERN.

Steel Nose, Side Straps and Cross-Bars Steel Axle.



For all Iron Slats add \$1,00 to list.

These trucks are made of the best selected hickory, oak or ash lumber. Bolts pass through straps, tenons and handles. Axles turned, wheels bored, and all parts made in the most approved way. Finished with best agricultural coach varnish. Iron parts blacked.



Fig. 1598.

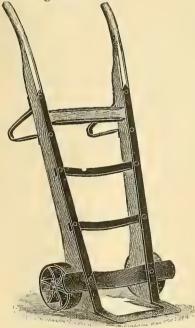


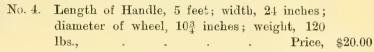
Fig. 1599.

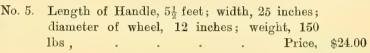
RAILROAD AND PACKING HOUSE TRUCKS.

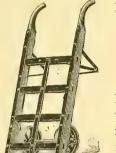
WESTERN PATTERN.

Extra Heavy. Cross-Bars and Straps Bolted through Handles. Axles Turned and Wheels bored.

Steel Nose and Side Straps. Steel Axle.







R. R. Full Ironed.

Fig. 1600.

Extra R.R. Full Ironed. Fig. 1601.

No. 4 Extra. Length of Handle, 5 ft.; width, 24 inches; diameter of wheel, $10\frac{3}{4}$ inches; weight, 126 lbs., Price, \$22.00

Centre Strap Welded to Nose.

These Trucks are made of the best selected second growth hickory, ash or oak lumber. Iron on cross pieces extends through to outside of handles, with bolts passing through iron, tenons and handles. All steel parts are heavier than iron parts ordinarily used. Axle and collar forged from one piece. All parts made in the most substantial manner, and will stand the roughest usage.

HEAVY RAILROAD TRUCK.

No. 4XX.

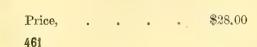
EXTRA HEAVY.

Two Centre Straps Welded to Nose.

The Strongest and Most Durable Truck ever made for general use in Railway Freight Houses. It has been adopted by many leading railroads of the United States as their Standard Truck.

This Truck has two centre straps welded to the nose instead of one, and the DASH, SIDES AND CENTRE STRAPS ARE EXTRA HEAVY.

Weight, 137 pounds.



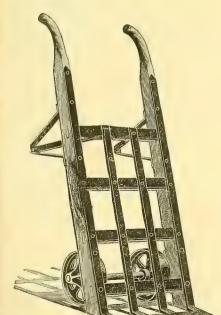


Fig. 1602.

"CALIFORNIA" LUMBER TRUCK.

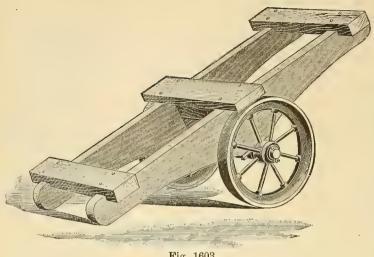


Fig. 1603.

Length, 76 inches; width, 31 inches; sills, 3x12 inches, end-bars, 3x6 inches: center-bar, 2x6 inches; axle blocks, 13x12 inches; steel axle, 2 inches square; staggered spoke Iron Wheels. inches diameter. with extra Wrought Tires, 4 inches tread; Hub. 5 inches long. Wood varnished. Wheels blacked. Weight. 500 pounds. Price, \$35,00.

The most economical way of handling lumber in large vards All bolt heads in iron straps on top of frame are countersunk to avoid scratching smooth lumber. The frame is 8 feet long, but is made shorter if de-

Width, 36

height, 24 inches. Wheels, 40

inches:

WISCONSIN" LUMBER BUCCY.

This is similar to above cut, but the frame is lighter and cross-bars at ends extend outside of frame, so as to form handles. Length, 6 feet; width, 3 feet; has "K. & J." Improved Wood Wheels, 40 inches in diameter, 3 inch tread. Steel axle, 13 inch square by 5 feet long. Painted Venetian red. Weight, 300 pounds. Price, \$30.00.

OHIO LUMBER TRUCK.



inches in diameter; tires, 2x3 inches. Steel axle, 13 inches Fig. 1604. square, axle boxes, 15x9 inches. Wooden Roller, 31 inches in diameter, Pain'ed Venetian red. Weight, 300 pounds. Price, \$35.00.

TIMBER DOLLY.



Fig. 1605.

The Standard Timber Dolly, used in logging regions, either as a Truck, as shown in cut, or as a Roller when bottom side up. Mortised frame of hardwood, with beveled edges; size, 19½ inches wide by 26 inches lorg; varnished. Heavy cast iron roller, 12 inches long, 6 inches diameter, with journals fitted in cast iron boxes which are firmly bolted through side rails of frame; weight, 58 lbs. Price, \$8.00.

sired.

Also make a smaller size: Frame 15\frac{3}{4} by 18\frac{3}{4} inches; ends square, not beveled: roller, 10 inches long, 6 inches diameter; weight, 42 lbs. Price, \$6.00.



Fig. 1606.

CANT HOOKS. SELECTED HICKORY HANDLES.

With Steel Pointed Hooks, Each, \$3.00 With All Steel Hooks, "3.50



CANT AND PEAVEY HOOKS, DUCK BILL.

Drop Forged. Best Cant Hook Steel.

Price, Each, \$0.72



CANT AND PEAVEY HOOK ROUND BILL.

Drop Forged, Best Cant Hook Steel.

Price, Each, \$0.72



Fig. 1609.

CANT OR PEAVEY HOOK CLASP.

Drop Forged. Sizes, $2\frac{1}{2}$ to 3 inches. Price, Each, \$0.60



CANT OR PEAVEY HOOK CLASP.

Drop Forged. Sizes, $2\frac{1}{2}$ to 3 inches. Price, Each, \$0.60



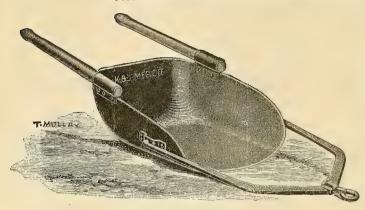


CANT AND PEAVEY PIKES.

Made of Best Cant Hook Steel. Price, Per lb., \$0.36

"COLUMBUS" SOLID STEEL SCRAPER.

THE LEADING ALL-STEEL DRAG SCRAPER.



No. 1. Without runners, carries 7 feet of earth. Used for long haul or down grade. Size of bowl: Top of back to cutting edge, 33½ inches; width, 32 inches; weight, 102 pounds. Price . . \$ Price, with runners . . . Price, with double bottom

Fig. 1612.

"BOSS" SOLID STEEL DRAG SCRAPER.

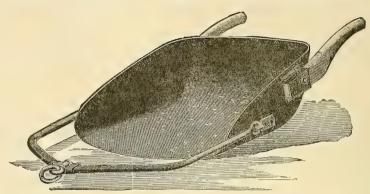


Fig. 161

No. 1. Capacity, 7 cubic feet; weight without runners, 90 lbs.; price 2. "5" "6" 80 "6" "6"

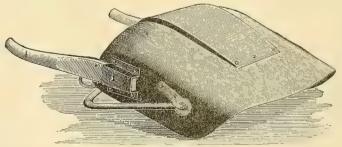


Fig. 1614.

Fig. 1614 shows Bottom Plate. We always ship Scraper without runners or bottom plate, unless otherwise ordered.

"K. & J." PRESSED BOWL WHEEL SCRAPERS.
WITH "BETENDORF" METAL WHEELS-TIRES 4 INCHES WIDE.

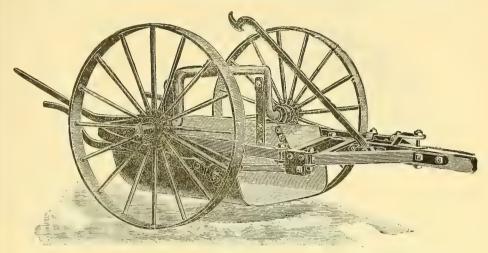


Fig. 1615.

No. 2. Capacity, 13 cubic feet; wheels, 40 inches in diameter; tire, 4x½ inches. Size of box: length, 36 inches; width, 38 inches; depth, 13½ inches—all inside measurement. Tracks, 4 feet 7 inches. Weight, 693 pounds. . \$
No. 3. Capacity, 17 cubic feet; wheels, 46 inches in diameter; tire, 4x½ inches.

No. 3. Capacity, 17 cubic feet; wheels, 46 inches in diameter; tire, $4x\frac{1}{2}$ inches. Size of box: length, 42 inches; width, 42 inches; depth, 16 inches—all inside measurement. Tracks, 5 feet 2 inches. Weight, 850 pounds. . . \$

side measurement. Tracks, 5 feet 2 inches. Weight, 850 pounds. . . \$
No. 3 has draft rod for "snatch team." No. 2 sent with draft-rod only when specially ordered. We also can furnish "K. & J." Wood Wheels, with hardened cast hubs, on these Scrapers when so specified; they are much superior to the old style wooden hub wheels with which other wheel scrapers are made, being more durable and running easier. Whiffletrees and Neck-yokes are never furnished with Wheel Scrapers, unless specially ordered, and are always charged extra.

TONGUE SCRAPER.

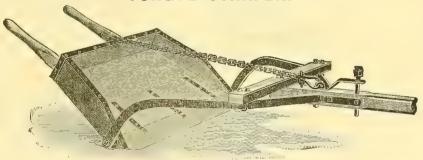
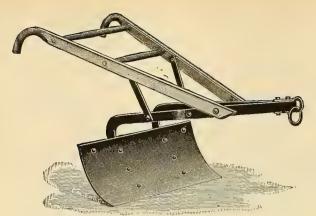


Fig. 1616.

THE DRIVER FILLS AND DUMPS HIS OWN LOAD WITH EASE.

No. 1 Scraper and Ditcher, 48 inches wide, weight 123 lbs., list price. . . \$14.00 No. 2 " 36 " 113 " 13 00 All our Scrapers have Steel Bottoms, with Ground Edges and Best Steel Shoes.

No Whiffletrees or Neck-yokes furnished with Scrapers.



SURFACE CRADER.

Steel Blade, 1 Inch Thick. 15 In. Wide and 30 In. Long. Weight, 60 Lbs.

Price

Fig. 1617.

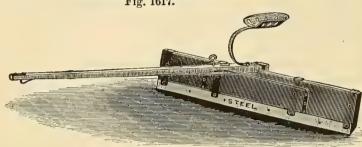


Fig. 1618.

ROAD LEVELER.

Steel Blade, 1 Inch Thick by 4x72 In., and Stamped Steel Seat. Weight, 150 Lbs.

Price. .

CREAT WESTERN RAILROAD OR CRADING PLOWS. The Best Grading Plows You Can Buy.

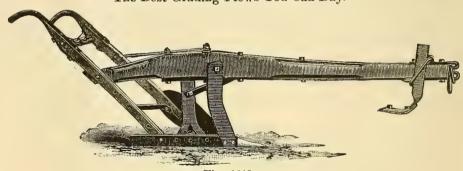


Fig. 1619.

TWELVE-HORSE PLOW, No. 103.

The Standard, Mold-Board and Point are made of Extra Quality of Wrought Steel, The Mold-Board and Point are made of the Best Plow Steel, and both double shinned. The Handles and Beam are of the best second-growth hardwood lumber, with Handholds Solid Steel. Plows Nos. 101 and 103 are also provided with a heavy improved Steel Shoe, or runner, upon the side to protect the Handles when the Plow is dragging. Made in four sizes, and Right or Left Hand. All sizes are provided with Best Reversible Steel Cutters.

The principal strain is carried by heavy Steel Draft Rod underneath the Beam, and the entire Plow is constructed to stand the very hardest usage. They cut 12 inches with Light Draft.

FOUR-HORSE PLOW, No. 105.

This Plow is medium size between Nos. 101 and 106. It cuts 10 inches, and while not intended for extremely hard material, is strong enough for any material that four horses can break. In ordering, please specify whether Right or Left Hand Plow is wanted. It is a great favorite with contractors.

PRIOR LIST SEE PAGE 467.

CREAT WESTERN RAILROAD OR CRADING PLOWS.

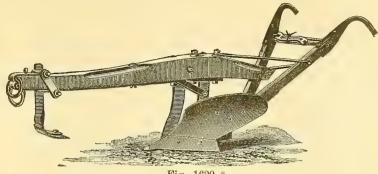


Fig. 1620.

TWO-HORSE PLOW, No. 106.

This Plow is Ironed same as the larger sizes and is stronger and more durable than the Plows offered by other manufacturers at same price. It is a good Township Plow.

In ordering any Plows in this list, it is necessary to State the size by Number, and whether they are desired Right or Left Hand.

We can supply Contractors on any kind of work with just such a plow as they desire, they deciding for themselves how large a Plow their work requires.

Prices for Plows include One Extra Landside Point.

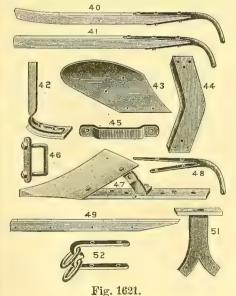
A Wrench Goes with every Plow.

TABLE OF SIZES, WEIGHTS AND PRICES

No.	Horse Power.	737 o 2 o 2 o 4	Tool	LANDSIDE	POINTS
NO.	Horse Fower.	Weight.	Price.	Weight.	Price. \$4.50 5.00 6.00 7.50
106	2 to 4	135 lbs.	\$25.00	19 lbs.	\$4.50
105	4 to 6	170	30.00	21 ''	5.00
101	6 to 8	220 ''	38.00	33 "	6.00
103	12 to 14	300 ''	45.00	43 "	7.50

Our Twelve-Horse Plow, No. 103, is strong enough for fourteen horses. It will work in the hardest material for months without injury, except the wear on the Share, Mold-Board, etc., incident to that kind of work.

We recommend No. 103 Plow for hard-pan, frost, loose rock, etc. Our Six-Horse Plow, No. 101, is really strong enough for eight horses. No. 105 is our Four-Horse Plow, and strong enough for use in any material that number of horses can break. No. 106 Plow, for light soil, requiring only two horses, but strong enough for four, cutting 10 inches, gives universal satisfaction.



PRICE LIST OF PARTS

FOR CREAT WESTERN PLOWS.

Figs 1619 and 1620

11gs. 1019 and 10.0.									
Name of Part.		No. of Part. Fig. 1621.	400	UMBER 105	of Pro	w.—			
Landside Point		47 8	\$3.00	\$3.50	\$4.25	\$5.25			
Standard and Cap	1	51	2.25	2.75	3.00	4.25			
Mold-board .		43	2.50	3.00	3.75	5.00			
Cutter		44	1.25	1.25	1.50	1.50			
Shoe or Slide		42	.75	.75	1.00	1.00			
Shoe Clamp .		46	.40	.40	.50	.50			
Clevis and Rings		52	.65	.65	.75	.75			
Handles with Handhold	s	40 & 41	1.75	1.75	1.75	1.75			
Handles, Wood or			.75	.75	.75	.75			
Iron Handhold		48	1.00	1.00	1.00	1.00			
Drag Iron .		45	.60	,60	.60	.60			

In ordering, be particular to state size of Plow and whether Right or Left Hand, and also the number of the Part as given above corresponding to cut of same.

CONTRACTORS' LICHT AND HEAVY DUMP CARTS.

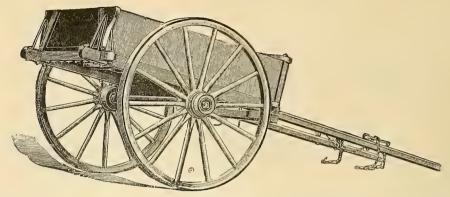


Fig. 1622.

Heavy Cart, Capacity, 24 Cubic Feet. Weight, 800 pounds.

Light Cart, Capacity, 21 Cubic Feet.

Weight, 650 pounds.

The Cart is painted Venetian Red. The Wheels are set to Standard Wide Track, 5 feet 2 inches. Strong, Substantial, Durable. Made throughout of Hardwood, Strongly Bolted and Braced. Specially adapted for the hardest usage, in hauling Rock, Gravel Clay, and other Heavy Material. Parts easily replaced when worn out.

Heavy Cart: Bed—Size of inside, 66 inches long, 44 inches wide, 14 inches deep.

Heavy Cart: Bed—Size of inside, 66 inches long, 44 inches wide, 14 inches deep. Light Cart: Same length and width, 12 inches deep. Wheels: 54 inches diameter. Spindte— $2\frac{1}{4}$ x10 inches. Wood Axle Bed— $3\frac{1}{4}$ x8 inches.

Spokes: Fourteen 2½ inch best second-growth oak.

Tires: $3x\frac{1}{2}$ inch. Shafts—Oak or Ash, $2\frac{3}{4}x3\frac{1}{4}$ inches, with heavy Cross-Bar, $2\frac{1}{2}x8$ inches.

Supplied with necessary Chains and Hooks as in cut.

The Bed has two heavy Sills, $2\frac{3}{4}x4$ inches, with heavy Cross-Piece, $2\frac{3}{4}x3$ inches at rear end. The Sides, Ends and Bottom are all $1\frac{3}{8}$ inches thick. The front end Board has Cross-Piece on top, $1\frac{3}{4}x4$ inches, bolted down through the Sills, and these bolts firmly bind together the front end of the bed. There are also four heavy anchor bolts inside on each Side Board, firmly securing them to the Side Sills, and the Side Boards have heavy iron straps along the upper edges. The rear ends of Sides and the Tail Gate have heavy iron braces.

Heavy Cart with Wing-Boards or Hopper, weight, 890 pounds. Price . . . \$

MEXICAN OX CART.

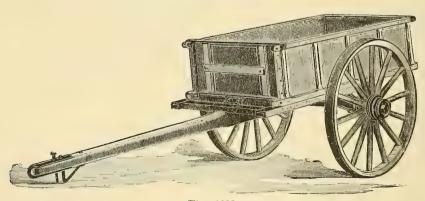


Fig. 1623.

Size of Bed, 6 feet long, 40 inches wide, 18 inches deep, inside measure, Front and Back Boards removable. Heavy Wood Hub Wheels, 48 inches diameter; Tire, 3½x½ inches; Skein Boxes, 1¾x9 inches. Steel Axles, 2 inches square; Tongue or Pole, 6½ feet long by 5 inches in diameter at rear, and 3 inches where Ox-yoke attaches. Bed painted green. Wheels and gear vermilion. Capacity, 30 cubic feet; weight, 800 pounds. Price, \$\\$

CONTRACTORS' DUMP CARS.

3-Yard, Class E, Two-way Dump Steam Shovel Car, 36 in. Gauge.

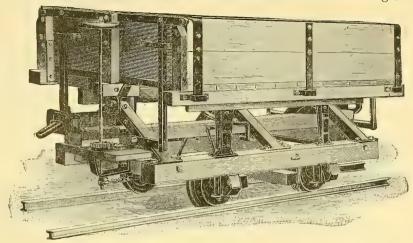


Fig. 1624.

CARRYING POSITION.

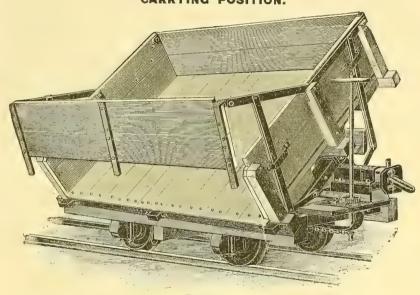


Fig. 1625.

DUMPING POSITION.

The above cuts show the improved Class E, Two-way Dump Cars, with heavy Wooden Sills, Boxes bolted direct to Sills.

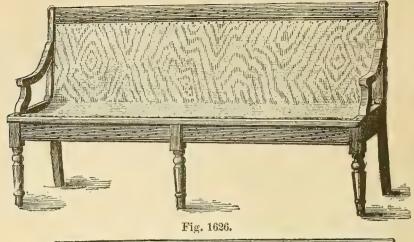
Inside Dimensions of Bed—Length, 96 in.; width, 72 in.; depth, 20 in. Total length from end to end of coupler, 141 in. Total width over all, 78 in. Chilled Plate Wheels—16 in. diameter; weight, 130 pounds each.

Axles—2\frac{3}{4} in. Round Steel. Bronzed Journal Bearings, 2\frac{1}{2}x7 inches.

Height-From top of rail to centre of draw-bar, 27 in.; from top of rail to floor, 40 in.; from top of rail to top of bed, 60 in.
Weight of Car—Approximately, 3,000 pounds. Eight to a carload.

Furnished with Brakes when so ordered.

SEATS FOR DEPOTS, HALLS, HOTELS, ETC.



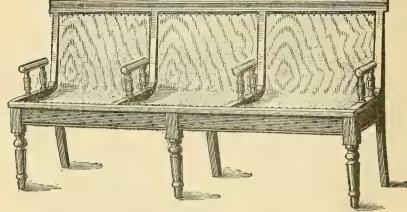


Fig. 1627.

Backs can be perforated and seat left plain, or both back and seat perforated if required, without change of price.

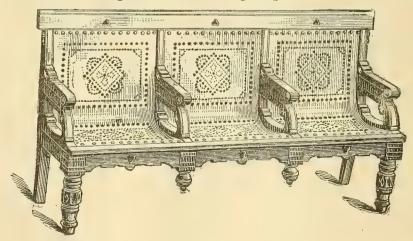


Fig. 1628.

SEATS FOR DEPOTS, HALLS, HOTELS, ETC.

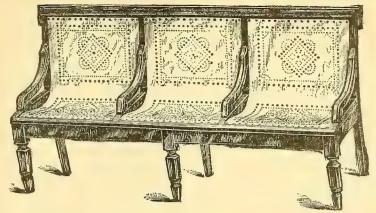


Fig. 1629.

The frames are made of ash, maple or birch, and finished natural color, antique, imitation mahogany or cherry. The veneer seat is made of birch, and perforated or left plain, and finished in any of the above colors. Prices on application.

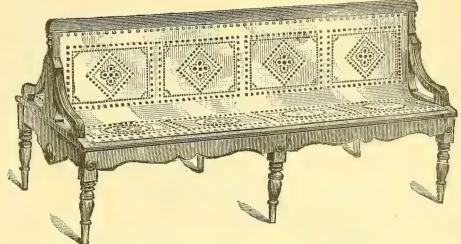
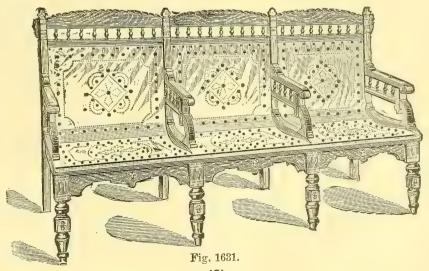


Fig. 1630. Height, 34 inches; width, 34 inches.

>



471

LEATHER COVERED NAILS.



Fig. 1632. Per M, \$3.00



Fig. 1633. Per M, \$3.25



Fig. 1634. Per M, \$5.50



Fig. 1635. Per M, \$3.50

NOTE.—Regular length of Nails, one-half inch, put up 1,000 in a box. Special lengths and new patterns prepared when desired on large contracts.

PATENT SOLID LEATHER TUFTING BUTTONS. THE STRONGEST, MOST DURABLE AND BEST IN THE MARKET.



Fig. 1636. Per Gross, \$0.45



Fig. 1637. Per Gross, \$0,45



Fig. 1638. Per Gross, \$0.55



Fig. 1639. Per Gross, \$0.55

These goods made in all leather colors, and in gold, silver, copper or colored bronze

HAM'S NO. 9 TUBULAR BURNER. **NEW STYLE.**

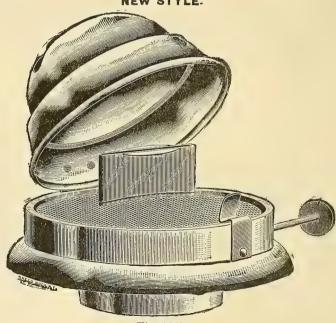


Fig. 1640.

Takes No. 3 or D Wick, $1\frac{1}{2}$ inch.

Used in the following Tubular Lamps of Ham's manufacture: No. 5 Triangular, Nos. 7 and 8 Square, No. 9 Hanging, No. 9 Street Lamp, No. 10 Square Street Lamp. Price, Per doz., \$6.00

472

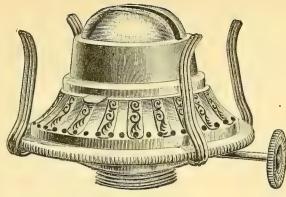


Fig. 1641.

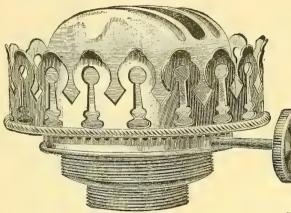


Fig. 1642.

経いだ・ハンちに



Takes Sun Chimney,

No.		P	er Doz.
0.	Banner		\$0.66
1.	6.6		.78
2.	66		1.11

Bronze Finish, 10 cents dozen extra, net,

NO. I CLIMAX BURNER.

Takes No. 1 Sun Chimney; fits No. 1 Collar; takes B or No. 2 Wick.

No. Per Doz. \$1.66

NO. 2 SLIP.

Takes No. 2 Sun Chimney; fits Nos. 2 and 3 Collars; takes D or No. 3 Wick.

No. Per Doz. \$2.00

Bronze Finish, 10 cents dozen extra, net.

Fig. 1642 shows No. 2 Climax Slip.

MOEHRING ARGAND BURNER.

Takes Moehring Chimney; fits No. 2 Collar; takes Moehring Wick.

This Burner is well known to the trade.

No. Per Doz. 3. B Collar, Moehring,

Brass . . . \$9.6

3. B Collar, Moehring, Nickel , 12.00

3. Railroad, Moehring,
Brass . . . 9.60

12 dozen in case.

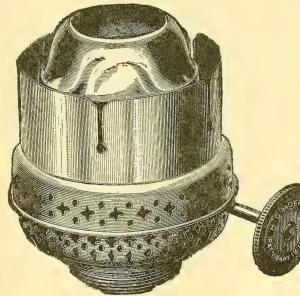
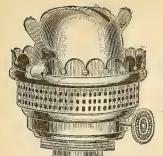


Fig. 1643.

COMPANT, NEW TO

HEAVY OIL BURNERS.



FOR RAILROAD AND STEAMBOAT USE.

DOUBLE SPRING CAR BURNER.

No. B Wick, Brass, per doz. \$5.00

Takes No. 2 Lip Chimney

Fig. 1644,

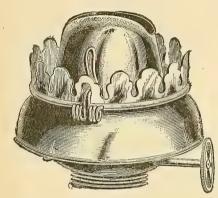


Fig. 1645.

THE DUAL BURNER.

With two Wick Tubes.

No.						Per Doz.
1.	With Sc	rew, D	ual .			\$3.88
1.	Single S	prings,	, Dual			3.88
2.	Double	66	6.6			4.44
2.	Single	66	66		•	4.44
2.	With Ser	rews,	66	•		4.44

Takes Lip Chimney, Common.

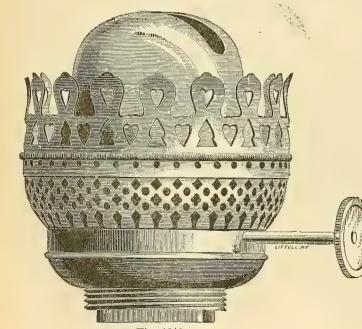


Fig. 1646.

ORIGINAL NO. 3 DUAL BURNER.

Takes No. 3 Dual.

" " 3 H. & S. " 3 Oxford Chimney.

Takes No. 3 Dual Wick.

Fits Special Dual Collar.

For Mineral Sperm and other heavy Oils. Specially adapted for Railroad and Steamboat uses.

No. 3, Dual, no Skirt, per doz. \$8.64



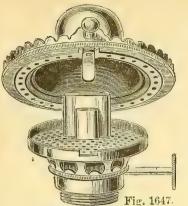


Fig. 1648.

No.							Brass, Per Doz.
0	(E)	Excelsion	or Sun H	Cinge	Burners,		\$1,63
1	(A)	6.6	66	66	6.6		1.80
2	(B)	6.6	66	66	6.6		2.70
3	(D)	6.6	46	4 6	66		6.30
No.							Brass, Per Doz.
0	Sun	Hinge !	Burners,	with	Skirt,	٠	\$3.13
1	6 @	60	6 6	6 6	6.6		3.75
2	66	66	6.6	66	4.6		5.00

Above Burners take Excelsior Sun Hinge Chimneys.

NIACARA BURNERS.

Furnished with Wicks.

No. 1.

No. 1 Fits No. 2 or B Collar,

Takes No. 1 Miller Chimney.

Takes No. 1 Rochester Chimney.

Takes No. 1 Niagara Chimney.

No. 1 (B) Niagara Burners, Brass, per doz., \$13.50

No. 2.

No. 2 Fits No. 3 D Collar.

Takes No. 2 Miller Chimney.

Takes No. 2 Rochester Chimney.
Takes No. 2 Niagara Chimney.

No. 2 Niagara Burners, Brass, per doz., \$16.20



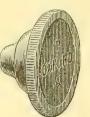
Takes No. 3 Dual Chimney

Fits No. 2 Collar.

Takes No. 3 Dual Wick.

Burns Kerosene, Mineral Sperm and other heavy Oils.

Per Doz. 2 B Collar, Oxford, \$5.40 for Rail-2 B 6.90 road use,



Bronze Finish. 10 Cents Dozen Extra, Net.





RAILROAD LANTERN LARD OIL BURNERS.

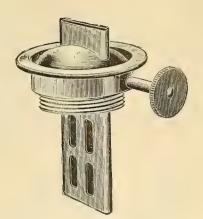


Fig. 1650.

No. 1 RATCHET BURNER.

§ inch Wick. Lard Oil. Per doz., \$0.75.

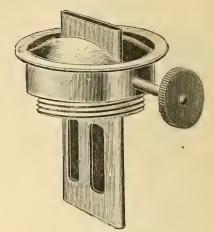


Fig. 1651.

No. I EXTRA RATCHET BURNER. inch Wick. Lard Oil. Per doz, \$1.00.

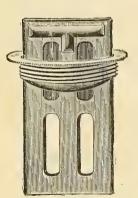


Fig. 1652.

NO. 1 EXTRA FLAT COPPER BURNER.

⁷/₈ inch Wick. Lard Oil. Per doz., \$0.75.

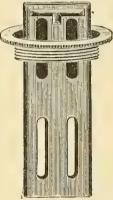


Fig. 1653.

NO. I FLAT COPPER BURNER.

 $_{8}^{5}$ inch Wick. Lard Oil. Per doz., \$0.60.

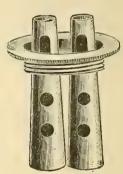


Fig. 1654.

NO. 1 TWO TUBE TIN BURNER.

Lard Oil. Per doz., \$0.35.

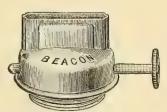


Fig. 1655.

BEAGON BURNER.

B Wick, fits A Collar. Per doz., \$1.00.

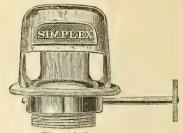


Fig. 1656.

SIMPLEX LANTERN BURNER.

No. Shaft, Per Doz. 1 A Wick, $1\frac{3}{4}$ inches, \$0.90. 2 B " $2\frac{3}{8}$ " 1.50.

RAILROAD LANTERN KEROSENE BURNERS.

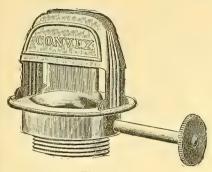


Fig. 1657.

NO. 1, CONVEX BURNER. 5 in. Wick, Kerosene, per doz, \$0.75.

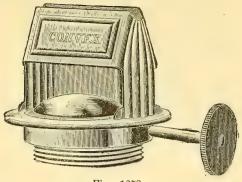


Fig. 1658.

NO. 2, CONVEX BURNER.
7 in. Wick, Kerosene, per doz., \$1.25.



No. 1, "Sangster," 5 inch Wick.

Per doz., \$0.75.

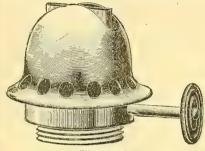


Fig. 1659.

TUBULAR LANTERN BURNERS.

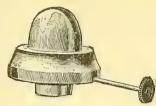


Fig. 1660.

NO. 0, 1-2 INCH TUBULAR BURNER. For Gem or No. 00 Lantern.

NO. 1, 5-8 INCH TUBULAR BURNER. For No. 0 Lantern. Per doz., \$0.75.

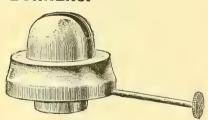


Fig. 1661.

NO. 2, I INCH TUBULAR BURNER. For Nos. 2, 4, 6, 12 and 17 Lanterns. Per doz., \$1.75.

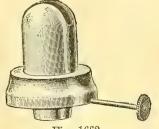


Fig. 1662.

REFLECTOR LAMP BURNER.

Fig. 1662.

No. 1, $\frac{5}{8}$ inch High Cone Hood, per doz. \$1.75

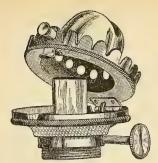


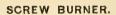
Fig. 1663.

BURNERS.

MARCY'S PATENT

HEAVY HINGE BURNER.

No.	0.	E Wick	. Brass.	Per Dozer	1 \$1.50
66	1.	A "	66	"	1.63
66	2.	В. "	66	· · · · · · · · · · · · · · · · · · ·	2.25



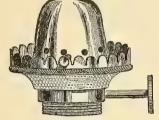
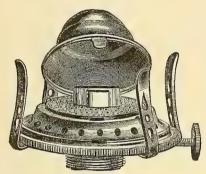


Fig. 1664.

No. 3. D Wick. Brass. Per Dozen \$4.38

All the above Burners take Old Style Lip Chimneys.



F16. 1665.

VENUS BURNER.

No.	0.	\mathbf{E}	Wick.	Brass.	Per	Dozen	\$1.00
66	1.	A	"	"	"	66	1.13
66	2.	В	"	66	66	"	1.50
			Takes	Sun Ch	iimne	v.	

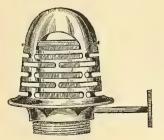


Fig. 1667.

CALENDER LANTERN BURNER.

WITH LONG OR SHORT SHAFTS.

BRASS.

No.	Wick.	Length of Shaft.	Per Dozen.
00	\mathbf{E}	$1\frac{5}{8}$	\$1.00
0	\mathbf{E}	$1\frac{5}{8}$	1.00
1	A	$1\frac{3}{4}$	1.13

Special Lengths of Shafts made to order.

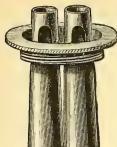


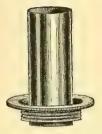
Fig. 1668.

OIL SCREWS, TUBED.

FOR BURNING LARD OIL

		1011 001	HING CARD	OIL.	
	Thread			Per	r 1000.
No.	Diameter.			Tin Tube.	Copper Tube.
3	🖁 inch,		1 Tube,	\$16.50	\$27.00
3	8 46		2 "	18.00	28.50
1	7 44	Kerosene Size,	1 "	18.00	27.00
1	7 44	66 46	2 "	18.75	30.00
1	1 "	Common,	2 ''	21.00	
1	1 ''	44	3 "	22.50	
1	11/8 "	Extra Size,	2 "	27.00	52.50
2	14 "	Kerosene Size,	2 "	30.00	60.00

Two hundred and fifty in a box.



BRASS TORCH BURNERS, WITH HOOPS.

			Length of Tube.						
No.		1½-inch.	13-inch.	2-inch.	2½-inch.	3-inch.	Brass. Per 1000.		
1	Kerosene Size,	\$32.50	36.00	36.00	45.00	54.00	44		
1	Extra,	37.80	41.40	41.40	50.40	59.40	4.6		
4		22.50	(With	Tin Tub	e.)				



Fig. 1669.

FEEDER SCREWS AND HOOPS.

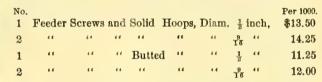


Fig. 1670. Solid Hoop,



Fig. 1671. Butted Hoop.

Five hundred in a box.



Fig. 1672.

OILER	SCREWS	AND	HOOPS.
			Per 1000.

No.		Oiler Hoop.	Oiler Screw
0	Diameter 5 inch,	\$7.00	\$9.00
1	44 8 46	8.00	10.00
2	44 1 44	10.00	12.00
3	66 <u>6</u> 66	12.00	14.00

Five hundred in a box.



Fig. 1673.

No	o.				_						1	Per 1000,
		il Scr	ews,	Extra, Bla	nk o	r Pier	ced,		Diameter	11/8 i	nch,	\$18.00
			"	Common					44	1	6.6	16. 50
1		"	4.4	Kerosene	44	4.6	4.4	4.6	"	78	4.6	15. 00
2		**	66	6.6	6.6	4.6	"	6.6	44	11	**	18 00
3			66			66	4.6	40	66	8	64	13.50
4			4.6			44	6.6	44	4.6	11 18	6.6	12.00
1	Ŧ	eeder	Scr	ews.		64	44	44	46	1/2	4.6	7.15
		66	201	16		**		44	66	9	6.6	7.90

OIL SCREWS.

Five hundred in a box.

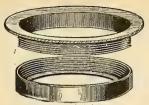


Fig. 1674.

BUTTED HOOPS.



Fig. 1675.

SOLID HOOPS.

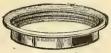


Fig. 1676.

NAVY SCREWS AND HOOPS.

Diameter In Box. Per 1000. Screws only. Hoons only. Plates only. of Threads. 66 \$40.00 13 inch 250 \$25,00 \$9.00

Plates can be furnished with 3, 4 or 5 Copper Tubes.

767 -			Thread	Per 1	
No.			Diam.	Butted Hoop.	Solid Hoop.
1:	Hoops,	Extra Size,	$1\frac{1}{8}$ inch	\$11.25	\$12.00
1	66	Common Size,	15 66 16	10.50	9.00
1	66	Kerosene "	7 "	7.50	7.50
2	66	66 66	$1\frac{1}{4}$ "		15.00
3	66		3 66	5.25	
4	66	Feeder,	11 66		7.50
4	66	(R)	11666		12.00
1	66	Feeder,	1 "	4.15	6.25
2	66	66	16	4.15	6.25

Five hundred in a box.

REDUCING COLLARS.



Fig 1677.

No.	Diameter of Threads.	Brass, Per Doz.
2 (B) to 1 (A),	$1_{\frac{3}{16}}$ to $\frac{7}{8}$ inch,	\$0.45
3 (D) to 1 (A),	$1\frac{3}{4}$ to $\frac{7}{8}$ "	.90
3 (D) to 2 (B),	1\frac{3}{4} \to 1\frac{1}{4} ""	.90

One-half gross in a box.

EXPANDING SCREWS.

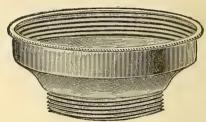


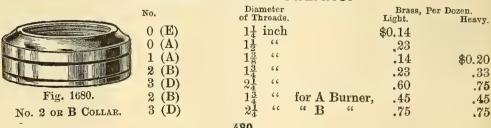
Fig. 1678. Diameter of Threads. Brass, Per Doz. No. 2 (B) to 3 (D), 1\frac{1}{8} to 1\frac{3}{4} inch \$0.90 1 (A) to 2 (B), $\frac{1}{2}$ to $1\frac{3}{16}$ " .45 One-half gross in a box.

LANTERN HOOP.



No.	1,	Solid	Lantern	Hoop,	•	•			\mathbf{Per}	1000,	\$5.00
No.	1,	Ex.	66	66					66	66	8.00
No.	2,		66	66					66	66	10.00

BEADED LAMP COLLARS.



480

PORCELAIN SHADES OR CONES.



Fig. 1681. PLAIN TOP.

45x9 inch Cones, Plain Top, per doz.

10 inch Cones, Ring Top, per doz.

11 "" "" 5x10 " " " " 5x10 "Domes,



Fig. 1682. RING TOP.

10 "Domes,

LANTERN CLOBES.



Fig. 1683.

No.	39.	White, pe	er dozen	•	•	۰	•	o	\$1.25
6 6	39.	Green,	66	•		•			7.00
46	39.	Blue,	66			٠	•		7.00
66	39.	Ruby,	44	•					11.00
Con	ducto	rs' Globe,	White, per	\mathbf{dozen}			•	•	3,00
	66	"	Half Color	ed, per	doze	$\mathbf{e}\mathbf{n}$	•		30,00

Fig. 1684\frac{1}{2}.

NO. O TUBULAR.
Packed 5 dozen in bbl.

White, per dozen Green, " Blue, 66 Ruby,

\$0.50 3,00 3.00 2.20 Fig. 1684.

NO. I TUBULAR. Packed 4½ dozen in bbl.

White, per dozen Green, Blue, Ruby,

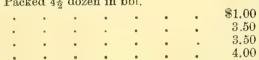


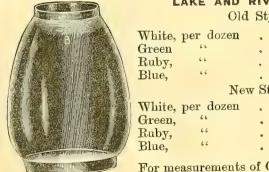


Fig. 1684.

\$2.00

LAKE AND RIVER CLOBES.

Old Style.



10 00 Green 14.00 Ruby, 10.00 Blue, New Style. White, per dozen \$2 00 Green, " 10.00

14.00 Ruby, 66 10.00 Blue,

For measurements of Globessee page 483.

Fig. 1686. No. 7, (New) Government Pattern Globe.

Fig. 1685. No. 7, Old Style Lake and River Globe.

BEST FLINT HAND-MADE CONDUCTORS' LANTERN CLOBES.



Fig. 1687.

NEW NO. 39, MILL AND FIRE DEPT. GLOBE.

			Per Doz.
White,			\$2.00

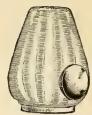


Fig. 1688.

NO. 39, R. R. GLOBE.

With Bull's Eve.

			Per Doz.
White,			\$2.00



Fig. 1689.

NO. I, "QUEEN" CON-DUCTOR GLOBE.

				Per Doz.
White,				\$6.00
Ruby, G	reei	or	Blu	e, 18.00
1 Ruby.	Gree	en o	r Bh	re.30.00



Fig. 1690.

NO. 3, COND'R GLOBE.

				1	Per Doz.
White,					\$6.00
Ruby,					18.00
Green or	Bl	ue,			18.00
1 Ruby,	Gre	en c	r B	lue,	30.00
_					



Fig. 1691.

NO. 3, COND'R GLOBE.

One-Half	Colored,
Per doz.	, \$30.00.



Fig. 1692.

NO. 6. COND'R CLOBE.

,					
				P	er Doz.
White,					\$6.00
Ruby,	. :	4			18.00
Green or	Bl	ue,			18.00
½ Ruby,	Gre	en c	r B	lue,	30.00

STREET AND HANGING LAMP CLOBES.

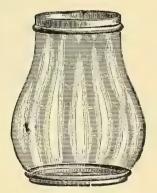


Fig. 1693.

NO. 9, STREET AND HANGING LAMP GLOBE.

	1	Per Doz.			Per Doz.	
White,		\$6.40	Blue,		\$50.00	
Green.		50.00	Ruby.	- 1	60.00	

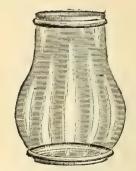


Fig. 1694.

NO. 4. HANGING LAMP GLOBE.

								Per Doz.
White,	•	•	٠	•	•	4	•	\$4.80

For measurements of Globes see page 483.

TUBULAR LANTERN CLOBES.



Fig. 1695.
No. 0, "Cold Blast"
Tubular Globe.

Vhite, Per doz., \$1.40 Packed $4\frac{1}{2}$ doz. in bbl.



Fig. 1696. No. 0, Tubular "Bull's

Eye" Globe.

White, Per doz., \$1.92
Packed 5 doz. in bbl.



Fig. 1697.

No. 00 or "Gem" Globe.

Per doz., \$0.90 Packed 8 doz. in bbl.

MEASUREMENTS OF GLOBES.

OUTSIDE MEASUREMENTS.

			To	p.	Bott	om.	Heig	ht.	Bulge.
Figure	No.	$1684\frac{1}{2}$,	213	in.	33	in.	65		4½ in.
4.4	4.6	1695,	$2\frac{3}{4}$	66	3,5	4.6	O	6.6	43 "
r c	4.6	1696,	218	6.6	$3\frac{3}{8}$	6.6	$6\frac{5}{8}$	44	41 15
* *	4.6	1697,		4.	$2\frac{3}{4}$	6.6	$\frac{5\frac{1}{5}}{5}$	44	37 "
4.5	66	1684,	$2\frac{3}{4}$	"	3 ½	4.4	$7\frac{1}{8}$	s. £	41/2 "
4.4	6.6	1693,	55	44	$6\frac{1}{8}$	4.6			85 66
44	4.4	1694,	$4\frac{1}{4}$	66	5	6.6	$8\frac{7}{8}$	4.6	67 44
+ 6	4.6	1683,	$2\frac{3}{8}$	66	$3\frac{1}{4}$	4.4	$5\frac{5}{8}$	66	45 16
4 s	r (1687,	$2\frac{1}{2}$	6.6	$3\frac{1}{2}$	6.6	$5\frac{7}{8}$	44	43 "
6.6	6.5	1688,	$2\frac{3}{8}$	66	$3\frac{1}{4}$	4.6	$5\frac{5}{8}$	44	45 "
1.6	6.6	1689,	$2\frac{1}{4}$	4.6	2_{16}^{9}		5	4.4	41.4
1.6	6.6	1690,	$2\frac{1}{8}$	66	$2\frac{5}{8}$	6.6	5	4.4	3 1 6 44
6.6	4.4	1691,	$2\frac{1}{8}$	4.6	$2\frac{5}{8}$	4.6	5	44	$3\frac{9}{16}$ '
k 6	4.6	1692,	$2\frac{3}{16}$	6.6	$2\frac{1}{1}\frac{3}{6}$	66	51	66	334
4.6	4.6	1685,	$2\frac{3}{4}$	84	$3\frac{\hat{7}}{8}$	66	$6\frac{3}{4}$	6.6	5 "
4.6	4.4	1686,	$2\frac{3}{4}$	66	4	46	$7\frac{1}{8}$	66	6 "

Globes Illustrated on Pages 481, 482 and above.

EXTRAS FOR LANTERNS.

Pages 492-493.

Extra Pots, with No. 1 or No. 1 Extra Tube Burners,		Per d	ozen, \$4.50
GLASS FOUNTS-Lanterns, Frames, or Extra Pots, when furnished with	Glass]	Founts,	1.20
SPIKE BOTTOM-Lanterns, Frames or Extra Pots, when furnished	l with	Spike	
Bottom, add			" 1.00
Numbering Frames—Lanterns or Frames when Numbered, add .			.50

BURNERS.

When other than the No. 1 or No. 1 Extra Tube Burners are desired, add to prices on Pages 492-493 Frames or Extra Pots as follows:

For	No. 1 Lard Oil Ratchet Burner,			٠			Per dozen,	\$0.50
46	No. 1 Extra Lard Oil Ratchet Burne	er,					4.6	1.00
66	Beacon Burner						6.6	1.00

HAM'S SPECIAL HEADLICHT.



Fig. 1698.

Diameter o	f Bot	ttom		٠			•	115 in	ches
Height			•			•		10	44
Per dozen								\$	

Packed as follows:

In boxes of 3, 6 or 12 dozen,

HALL HEADLICHT.



No. 1 No. 2 Size Diameter of Bottom $2\frac{1}{2}$ inches $2\frac{3}{4}$ inches . . . 27/8 " Diameter of Bulb . 38 " . 10 " 10 " Height . Per dozen

Packed as follows:

In boxes of 3 or 6 dozen.

Fig. 1699.

STANDARD HEADLIGHT.



Size			۰	No. 1	No. 2
Diameter of Botto	\mathbf{m}			$2\frac{1}{2}$ inches	$2\frac{3}{4}$ inches
Diameter of Bulk		•		27/8 "	3 "
Height		•		10 "	10 "
Per dozen .	•			\$	\$

Packed as follows:

In boxes of 3 or 6 dozen.

Outside dimensions are given for all measurements.

Fig. 1700.

MACNUM CHIMNEYS.

Diameter	of	Base	Э		e			ø			37 inches
46	66	Bull)								$5\frac{1}{4}$ "
66	66	Top									31
Height		•									93 "
Per dozer	1			•					•	•	\$

Packed 2 dozen in barrel.



Fig. 1701.



Fig. 1702.



Fig. 1703.



Fig. 1704.

No. 1 Rochester	No	. 1 N	Viagar	a		No.	1 T_1	renton
" 1 Miller	6.6	1 F	Royal			66	1 M	eriden
" 1 Juno			Ieteor			66	$1 \mathrm{Br}$	ristol
" 1 B. & H.	66	1 V	ictor			6.6	1 H	aida
" 6 Macbeth	66	1 E	Ceysto	ne				
Diameter of Bottom,					•	9		2 inches
Diameter of Bulb,		0						3 "
Diameter of Top, .				•				144 "
Height,								8
Price,				c		Per	doz	., \$
Packed as follows:								

In boxes of 3, 6 or 12 dozen, and barrels of 11 dozen.

No. 2 Rochester " 2 Miller " 2 Juno " 2 Royal " 2 Victor " 2 Meteor " 2 Niagara " 8 Macbeth	66 6	2 2 2 2	Wheeling Gladstone Wellington Meriden Bristol Haida Pittsburg			" 2 " 2 " 2	Parker American Trenton Rival Admiral Manhattan Smokeless
Diameter of Bulb, Diameter of Top, Height, Price,	•		• • •	•	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		25 inches 35 " 17 " 9 " loz., \$

Packed as follows:

In boxes of 3 or 6 dozen, and barrels of 7 dozen.

NO. 2 ROCHESTER, EXTRA LONG.

No. 2 Niagara, extra	long.		No	o. 2 B.	& H, 1	0 inches	high.
Diameter of Bottom,	,		a 4.			25	inches
Diameter of Bulb,		,				$3\frac{1}{2}$	66
Diameter of Top,						$1\frac{7}{8}$	66
Height,						and 14	44
0 ,	To be	used	l with (Globes,			
Price,					. Per	doz., \$	}
Packed as follows:							
10½ inch, in box	es of 3	or 6	dozen,	and in	barrels	of 6 do	zen.
12" " "	3	or 6	66	66	6.6	5	6.6
14 66 66	3	or 6	6.6	6.6	6.6	4	6

SUN BULB.

For all Sun Burners.

Size, .			. N	o. 0		No. 1		No	. 2
Diameter	of :	Bottom,	2 ir	$_{ m iches}$	$2\frac{1}{2}$	inches	6	\sin	ches
Diameter			34	6.6	$3\frac{5}{8}$	66	4	4	66
Height,			$6\frac{3}{4}$	6.6	71	6.6		31	6.6
0			doz.	\$	Per doz	\$	Per doz .	\$	

Packed as follows:

No.	0,	in boxes	of	3,	6	or	12	dozen,
66	1,	66	of	3,	6	or	12	66
66	2,	66	of		3	or	6	66

Outside dimensions are given for all measurements above.

ELECTRIC.

For Electric and Banner Lamps. Grand, Little Giant, Sun Duplex, Climax and other No. 3 Wick Burners.



Size	•		No. 1 $2\frac{1}{2}$ inches $3\frac{1}{2}$ "	No. 2 3 inches 4 "
Height Per dozen	Postod	•	8 <u>3</u> " \$	10 " \$

Packed as follows:

No. 1, in boxes of 3, 6 or 12 dozen, and barrels of 71 dozen. " 2, in " of 3 or 6 " "

NO. 2 ELECTRIC FOR CLOBE.

Diameter of Bottom				3 inches
Diameter of Bulb .				3½ "
Height regular .			•	10
Height extra long .	•			12 "
Per dozen				\$

Fig. 1705.

Packed as follows:

10 inch in boxes of 3 or 6 dozen, and barrels of 6 dozen. 12 " in " 3 or 6 " of 5 "



Fig. 1706.

Diameter of Bottom

BELGIAN.

No. 1 Belgian.			No. 00 Belgian.	
" 1 Liberty.			" 00 Liberty.	
" 2 Plumwood.			" 3 Plumwoo	
" 2 Dresden.			" 3 Dresden.	
" 4 B. & H. Radiant.			" 5 B. & H.	Radiant.
Size			No. 1	No. 00
Diameter of Bottom			2½ inches	3 inches
Diameter of Bulb .			3 "	31/4 "
Height	0	e	$10\frac{3}{4}$ "	12 "
Per dozen	4		\$	\$

May be cut to any other length desired. Packed as follows:

No. 1 in boxes of 3 or 6 dozen, and barrels of 6 dozen. " 00 in " of 3 or 6 " " " 4 "



BUFFALO HEADLICHT.

·23 inches

Diameter of Bu Height . Per dozen .			•	•			•	33/4 " 10 "	
Diameter of Bo	ttom	EUR	EKA					$2\frac{3}{4}$ inches	
Diameter of Bu					•			$3\frac{1}{4}$ "	
Height Per dozen .	٠	• .				•	•	10 '' \$	

Packed as follows:

In boxes of 3 or 6 dozen. Outside dimensions are given for all measurements.

Fig. 1707.

DUAL AND LIP.



Fig. 1708.

No. 0, 1, 2 and 3 Lip			No. 0,	1 and 2	Dual
" 0, 1, 2 and 3 Ives			" 0,	1 and 2	Richmond
Size		No. 0.	No. 1.	No. 2.	No. 3 Lip.
Diameter of Bottom					$2\frac{5}{8}$ ins.
Diameter of Bulb		25 "			
Height		6 "	7 "	8 '	91 "
Per dozen		\$	\$	\$	\$

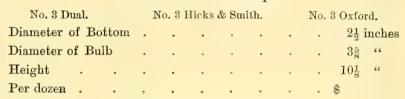
For special orders these chimneys are made of any length or diameter of bulb required. Always give dimensions wanted.

Packed as follows:

No. 0 in boxes of 3, 6 or 12 dozen. " 1 in of 3, 6 or 12 " 2 in " of 3 or 6 "3 in " of 3 or 6

NO. 3 DUAL.

For Railroad Car Lamps.



Packed as follows:

In boxes of 3 or 6 dozen.



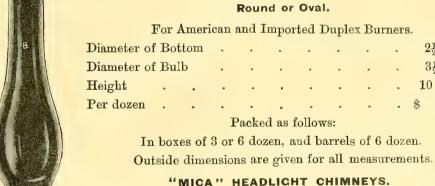




Fig. 1709.

Fig. 1710.

 $2\frac{1}{2}$ inches

. 10



ROUND OR OVAL, FOR SUN HINGE BURNERS.

Size	No.	0 No. 1	No. 2	No. 3
Diameter of Bottom .	$1\frac{7}{8}$ ins	$2\frac{3}{8}$ ins.	2_8^5 ins.	$3\frac{1}{4}$ ins
Diameter of Bulb	3 "	$3\frac{1}{2}$ "	$3\frac{3}{4}$ "	41 66
Height	6 "	73 "	8 <u>1</u> "	91 "
Special Size for Globe			21	
Diameter of Bulb . 5	• •	• • •	$3\frac{1}{2}$ "	
Price per dozen	. \$	\$	\$	\$

Fig. 1711.

Packed as follows:

No. 0, in boxes of 3, 6 or 12 dozen.

" 1, in " of 3, 6 or 12 "

No. 2, in boxes of 3 or 6 dozen.

" 3, in " of 3 or 6 "

[B]

FOR CAS BURNERS.

Welsbach.

Diameter . 1½ and 2 inches
Length, 5, 6, 7, 8, 9 and 10 "
Made with either plain or
Frosted Bottom.
Per dozen . . \$
Packed as follows:
In boxes of 3, 6 or 12 dozen.

Fig. 1712.



MOEHRING.

For Moehring and Harvard Burners.

Diameter of Bottom . 2 inches Diameter of Bulb . $2\frac{1}{4}$ " Height . $5\frac{1}{2}$, $7\frac{1}{2}$ or 10 " Per dozen . \$

Packed as follows: In boxes of 3, 6 or 12 dozen.

Fig. 1713.



NO. II POSTAL CAR.

Packed as follows: In boxes of 3 or 6 dozen,



STUDENT.

Sîze.	Princess or Victor.	No. 1 Student. No. 1 Perfection	No. 2 Student or Brilliant
Diam. o	f		
Bottom	1.5 in.	$1\frac{7}{8}$ in.	1^{3}_{1} in.
Diam. o	f	o .	*
Top	. 1 in.	13 in.	$1\frac{1}{4}$ in.
Height	. 75 "	101 "	103 "
Per doz.	. \$	\$	\$

Packed as follows:

In boxes of 3, 6 or 12 dozen.

Fig. 1714. Fig. 1715.

Outside dimensions are given for all measurements.

WICKS.

No		0 or E.	1 ი	r A.	2 or B.	3 or D.		
Width, inches, .					1	1½		
Per gross,		$\frac{\frac{3}{8}}{8}$ \$0.60	$\frac{8}{.78}$		1.10	1.75		
Brilliant, Argand an	d Crystal Lig	ht.			Per gross			
Dietz 3 inch wide, 8	inches long,					.90		
B. Wick, Double Th	nick,				66 66	2.50		
	ne above Wick				rice	2.00		
D. Dual, 10 inches le					Per gross	#9 n n		
No. 3, Moehring, $2\frac{3}{4}$					ier gross	3.00 3.00		
Duplex and Oxford,					66 66	3.00		
Nos. 1 and 2 German	n Student,	• •			66 66	1.10		
Gem, ½ inch wide,					66 66	.60		
No. 1 Rochester,					66 66	1.25		
No. 2 Rochester,					66 66	1.75		
No. 3 Rochester,					66 66	6.00		
					66 66	1.25		
No. 2 Banner, .				o a	66 66	2.00		
No. 3 Banner, .					66 66	4.75		
No. 1 Niagara, 71 in	ches long,				66 66	2.75		
No. 2 Niagara, 8 inc					66 66	9.50		
No. 1 Belgian, .				a 9	66 66	3.00		
No. 00 Belgian, .					66 66	3.50		
					66 66	2.50		
No. 2 Miller, .					66 66	2.00		
Sun Duplex, .				o 6	4.6 4.6	1.00		
Eureka,					66 66	1.25		
	HEADLI	CHT V	VICK (FELT).				
Width, inches, .			$1_{rac{1}{16}}$	$1\frac{1}{8}$	$1\frac{1}{4}$	1.1		
-	• •		$\frac{1}{16}$ \$7.00	7.00	7.50	$\frac{1\frac{1}{2}}{8.00}$		
Per gross,	• •		Φ1.00	1.00	1.50	0.00		
	C	ANDLE	WICK	. III				
No. 2,	Per pound,	\$0.18	Best,		Per pound	1, \$0.20		
		WAS	TE.					
WASTE. WHITE COTTON. COLORED COTTON.								
Best Cop Machined,	Per lb	Š	"A." E	Best Machin	ned, . Per lb	. 8		
No. 1,	66	74"	"B,"	66 66		7 m'		
· · · 2,			"C,"	"	. 66			
· · · 3,			3	cc 66	. 66			
0,								
	WOOL PACKING.							
Carpet Thrums	No.			. 2 Extra		No. 3		
Per lb., \$	Per Ib.,		Per lb.	, \$	Per lb.,	\$		

Waste put up in 100, 250 and 500 lb. Bales.
We have all grades of Wiping and Packing Waste.
Prices quoted and samples sent on application.

HAM'S TWO-PIECED TUBE TIN TUBULAR LANTERNS.

NO. O, HANDY.

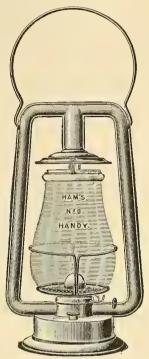


Fig. 1716.

PLAIN TIN ONLY.

				Price, Per Doz.
With	White	Globe,		\$9.00
66	Ruby	**		12.00
66	${\bf Green}$	or Blue	Globe,	12.00

Has No. 1 Burner, $\frac{5}{8}$ inch Wick, No. 0 Globe.

Adapted for contractors, and in cities about sewers, etc.

Also used with Ruby Globe as a guard lantern.

NO. 0 AND NO. 2, SIDE SPRING SAFETY.

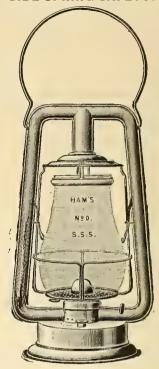


Fig. 1717.

Ruby

TIN TUBULAR. No. O-Glass Fount. Price, Per Doz. With White Globe, \$13.00

. \$13.00 . 16.00 obe, 16.00

" Green or Blue Globe,	16.00
Has No. 1 Burner, $\frac{5}{8}$ inch	Wick,
No. 0 Globe.	
No. 2.	Price, Per Doz.
With White Globe,	\$13.00
" Ruby "	16.00
" Green or Blue Globe,	16.00
Has No. 2 Burner, 1 inch	Wick,
No. 0 Globe.	

Fig. 1716 packed 1 doz. cases, net weight 20 lbs., gross weight 32 lbs.

Fig. 1717 " 1 " " " No. 0, 21 lbs., gross weight 34 lbs. Fig. 1717 " 1 " " " No. 2, 23 lbs., " " 39 lbs.

Fig. 1717 " 1 " " " No. 2, 23 lbs., " " 39 lbs. Fig. 1717 is also made copper-plated, brass-plated, solid brass and solid brass nickel-plated.

HAM'S TWO-PIECED TUBE TIN TUBULAR LANTERNS.

No. 0 and No. 2.

CLIPPER LIFT.

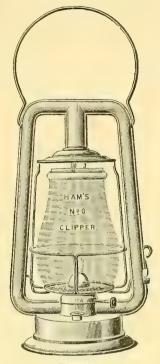


Fig. 1718.

TIN TUBULAR.

No. 0					Per	Dozen
With White G	lobe		0	٠		\$9.50
" Ruby	66 .					$12 \ 50$
"· Green or	r Blue					12.50
Has No. 1			.,	ch	Wie	k.
	No. 0	Ut I C	be.			
No. 2	2.				Per	Dozen
With White G	lobe					\$13.00
" Ruby	66					16.00

Has No. 2 burner, 1-inch wick. No. 0 Globe.

" Green or Blue .

No. 1 and No. 2. COLD BLAST.



Fig. 1719.

Per Dozen

TIN TUBULAR.

No. 1.

With	White	Globe						\$13.50
66	Ruby	4.4						16.50
66	Green	or Blu	.e					16.50
I	Ias No.	1 Bur	ner	, 5/8	in.	ch	Wi	ck.
	No. 0	"Cold	\mathbf{B}	ast	" C	llo	be.	
	No.	2.					Per	Dozen
With	White	Globe						\$16.00
6.6	Ruby	66						19.00
6.6	${\rm Green}$	or Blu	e	• '				19.00
J	las No	2 Bur	nei	, 1	in	eh	Wi	ek.
	No. 0	"Cold	Bl	ast	" C	lo	be.	

Fig. 1718 is also made Copper-Plated, Brass-Plated, Solid Brass and Solid Brass Nickel-Plated.

Fig. 1719 is also made Solid Brass and Solid Brass Nickel-Plated.

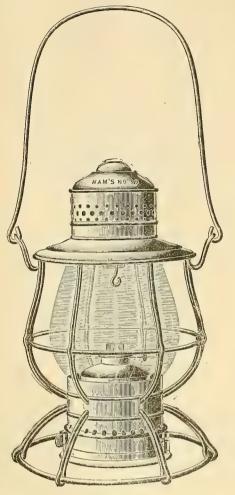
16.00

Fig. 1719 is especially adapted for use in Mills, Lumber Camps and other places where there is considerable dust, as the Burner will not clog up.

Also adapted for the use of TRACK WALKERS

HAM'S STANDARD RAILROAD LANTERNS.

For Lard or Sperm Oil, also Kerosene.



The Bail Stands Automatically Erect.

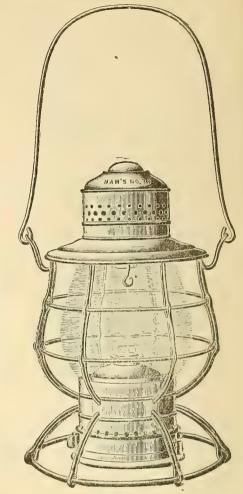


Fig. 1720. Wire Bottom, Single Guard.

Fig. 1721. Wire Bottom, Double Guard.

DOUBLE WIRE UPRIGHT (PATENTED).

With White Glob							dozen,	
" Green or B	lue (Globe				66	6.6	16.50
" Ruby Glob	Α.						66	20.50
Frames only .						66	6.6	10.00
			IGLE					
With White Glob	oe .					Per	dozen,	\$11.00
With White Glok	oe . Slue	Globe				66	66	\$11.00 15.50
" Green or E	Blue	Globe				66		
With White Glok "Green or E "Ruby Glok Frames only	Blue '	Globe				66	66	15 50

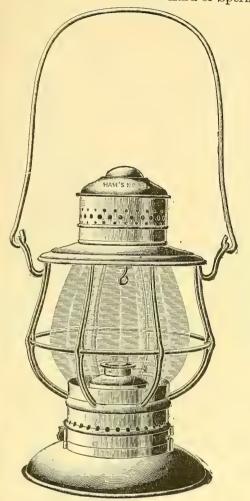
For other Burners see page 483.

Initials of railroads stamped on Frames in lots of 10 dozen or more without extra charge.

492

HAM'S STANDARD RAILROAD LANTERNS.

For Lard or Sperm Oil, also Kerosene,



The Bail Stands Automatically Erect.

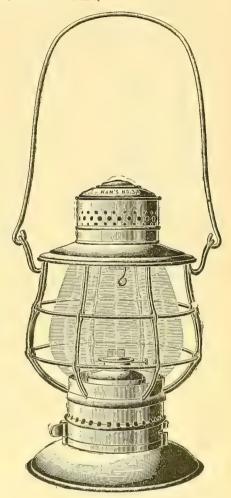


Fig. 1722.
TIN BOTTOM, SINGLE GUARD.

Fig. 1723. Tin Bottom, Double Guard.

DOUBLE WIRE UPRIGHT-PATENTED. Single or Double Guard.

		~1451	0	I Doug	NO C	carce.		
With White Globe .							Per dozen,	\$11.50
" Green or Blue Glo	be						66	16.00
" Ruby Globe .							66	20.00
Frames only, no Globes							66	9,50
		SINGLI	E١	WIRE	UPR	IGHT		
		Single	9 01	Doub	le G	uard.		
With White Globe .							Per dozen,	\$10.50
" Green or Blue Glo							6.6	15.00
" Ruby Globe .							66	19.00
Frames only, no Globes							6.6	8.50
Frames only, no Globes								0.00

The above prices are with No. 1 or No. 1 Extra Tube Burners.

For other Burners see pages 476 and 477.
Initials of railroads stamped on frames in lots of 10 dozen or more, without extra charge.

493

HAM'S FINELY FINISHED BRASS AND NICKEL-PLATED CONDUCTORS' LANTERNS.

Fig. 1724.

No. 3 BAYONET CATCH

For Lard or Sperm Oil.

Made in Solid Brass.

Highly Polished.

Also Finished in Silver and Gold Plate,

 $\begin{array}{c} \text{GLOBES,} \\ \text{Best Flint, Hand Made.} \end{array}$



Fig. 1725, No. 3. SCREW OH, CUP

		2101 0. 1001/211	TALL COLI
	Per Dozen	P	er Dozen
Brass White Globe	. \$48.00	Brass White Globe	\$48.00
" N. P. " "	. 54.00	" N. P. " "	54.00
Brass ½ Ruby, Green or Blue		Brass & Ruby, Green or Blue.	78.00
" N. P. " " " "	. 84.00	" N. P. " " " " " " " " " " " " " " " " " "	84.00



No. 1. SCREW OIL CUP. (Take Fig. 1689 Globe.) Furnished in
White, Ruby, Green,
Blue, Half Green,
Half Ruby,
Half Blue
Globes.

Made Extra Strong.



Fig. 1727. No. 3. WIRE BOTTOM.

	Per Dozen	1	Per Dozen
Brass White Globe		Brass White Globe	\$48.00
" N. P. " "		" N. P. "	54 00
Brass ½ Ruby, Green or Blu		Brass & Ruby, Green or	Blue . 78.00
" N. P. " " " " " "	. 96.00	" N. P. " " " " " "	. 84.00
		101	

FINELY FINISHED BRASS, NICKEL, SILVER AND COLD-PLATED CONDUCTORS' LANTERNS.

For Lard or Sperm Oil. Made Extra Strong. Globes, Best Flint, Hand Made. Furnished in White, Ruby, Green, Blue, Half Green, Half Ruby, Half Blue Globes.







	rig.	1738.	
No. 6	3. BAY	YONET (Сатон.
			White Glob
66	1728,		Nickel-plate
4.6	1728,		1 Ruby, Gre
66	1728,		Nickel-plate
66	1729,	66	66
66	1729,	66	1 Ruby, Gre
4.6	1729.		White Glob

66

66 66

66

1729,

1730,

1730.

1730,

	Fig. 172				Fig. 17	730.
CATOH.	Vo. 39. BAYON	ет Сатон			No. 6. SCREW	OIL CUP.
s, White Globe					Per doz.	\$54.00
Nickel-plated,	White Globe				6.6	60.00
1 Ruby, Green					4.6	84.00
Nickel-plated,			ıe .		4.6	90.00
6	i	6.6			66	66.00
1 Ruby, Green	or Blue .				6.6	60,00
White Globe					4.6	30.00
Nickel-plated,					6.6	36,00
"	66				4.6	60.00
White Globe			-	-	4.6	54.00
1 Ruby, Green	or Blue				6.6	84.00
Nickel-plated,		a or Blu	е.		4.6	90.00
1 / 2	67		-			



Hinge Top.

(Government Pattern).

With No. 1 Extra Flat Copper Burner. For Sperm or Lard Oil and Kerosene.



If wanted with No. 2 "Index" Kerosene Burners add, per dozen, \$0.50.

6 inch Globes.



LAKE AND RIVER, LARD OIL, TIN LANTERNS.

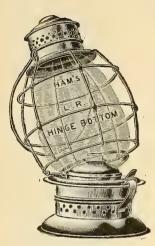


Fig. 1732. HINGE BOTTOM.

No. 7, Old Lake and River Lantern. Regular Pattern.

With	With	With
White	Green or	Ruby
Globe	Blue Globe	Globe
Per doz.	Per doz.	Per doz.
\$12.00	\$17.50	\$21.50

Fitted with No. 1 Extra Flat Copper Burners.

If wanted with No. 2
"Index" Kerosene Burners,
add 50c dozen.



Fig. 1733. HINGE TOP.

These Lanterns are built very strong and finely finished. Used principally on River and Lake Steamers and Vessels.

POLE TARGET LAMPS (RAILROAD), OR MAST HEAD LAMPS.

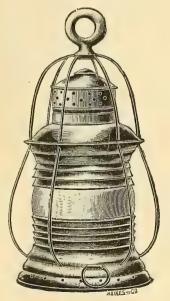


Fig. 1734.

WITH IMPROVED BOTTOM.

Burns Kerosene.

With White, Green or Ruby Fresnel.

Will not blow out.

\mathbf{With}	White	Fresnel	Globe		Each,	\$8.00
66	Green	66	6.6		66	10.00
66	Blue	66	66		6.6	10.00
	Ruby	66	6.6		66	12.00

FIREMAN'S LANTERNS.



Fig. 1735.

Nickel-plated .

Solid Brass .

NO. 39,

BRASS FIREMAN'S LANTERN.

Ring in Top.

Solid Brass Polished and Nickel-plated.

Burns Lard oil.

5 inch Ratchet Burner.

No. 39 Globe.

For Fire Department Use.

Fig. 1736.

NO. 39,

Per doz. . \$36.00

42,00

FIREMAN'S LANTERN.

With Hood and Outside Ratchet.

Burns Lard Oil.

5 inch Ratchet Burner.

No. 39 Globe.

For Fire Department Use,

Strongly Built.

Solie	l Brass	o		0	•	•	•	•	•	0	Per doz.	\$42.00
	66 .	Nic	kel-pl	ated	٦	٠		•	•		66	48.00

HANGING LAMPS.

No. 9. Fig. 1737.

IMPROVED CLOBE TUBULAR HANGING LAMP.

With Globe Lift Attachment.

Automatic Extinguisher. Outside Wick Regulator.

No. 3 Globe. Patent Wind-break. 12 inch Wick.

This lamp is made exactly like the Globe Street, with the exception of the addition of bail to hang, and bottom in place of post socket.

Packed in cases of 1 each.

No. 9, Hanging Lamp, with Tin Fount, each \$6.00

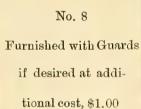
" 9, with 8-inch Side Reflector . . 8.50

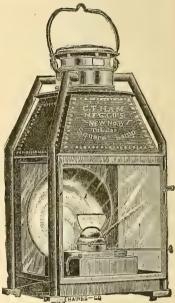
No. 8.

Packed 1 in a case.

Net weight, 11 lbs.

Gross weight, 31 lbs.





Patented.

No. 8--Fig. 1738.

NEW IMPROVED SQUARE TUBULAR LAMP.

Outside Wick Regulator. Patent Wind-break.

Ten inch Silvered Glass Reflector.

No. 3 Burner. $1\frac{1}{2}$ inch Wick. Height, $24\frac{1}{2}$ inches. Width, $13\frac{1}{2}$ inches.

Depth, $11\frac{1}{2}$ inches.

Especially adapted for use in warehouses, packing houses, saw mills, lumber yards, freight yards, railway stations, or places where a good strong light is required. Each, \$8.50.

Nº 9
GLOBE HANGING
LAMP.

No. 9 -Fig. 1737.



No. 5—Fig. 1739.

NO. 5, TRIANGULAR TUBULAR LAMP.

Outside Wick Regulator.
Patent Wind-break.
10 inch Silvered Glass
Reflector.

No. 3 Burner, 1½ in. Wick. Packed in cases of 1 each. Net weight, 10 lbs.; gross weight, 30 lbs. Each, \$8.50

COLD BLAST, TIN TUBULAR, SIDE REFLECTOR LAMP.



Fig. 1740.

NO. 11.

Five Inch Silvered Glass Reflector.

No. 1 Burner, 5 inch Wick, No. 0 Globe.

No. 11 Side Reflector Lamp, Plain Tin, Doz., \$17.50 No. 11 " Japanned, 18.00

NO. 12.

Six Inch Silvered Glass Reflector.

No. 2 Burner, 1 inch Wick, No. 0 Globe.

No. 12 Side Reflector Lamp, Plain Tin, Doz., \$21.50 No. 12 " " Japanned, " 22.00

Finished in Blue Japanned and Plain.

Can be filled, lighted or trimmed without removing the globe. Especially adapted for use in stores, warehouses, barns, engine and boiler rooms, or any place where a strong light is required.

Packed in cases of $\frac{1}{2}$ dozen each.

Net weight, 16 lbs.; gross weight, 30 and 33 lbs.

NO. 7.

NEW IMPROVED SQUARE TUBULAR LAMP.

Outside Wick Regulator. Patent Wind Break, Eight Inch Silvered Glass Reflector.

Height, 22 inches. Width, $11\frac{1}{4}$ inches. Depth, $10\frac{1}{2}$ inches.

No. 3 Burner. 1½ inch Wick.

Especially adapted for warehouses, saw mills, lumber

yards, freight yards, railway stations, etc.

Net weight, 8 lbs.

Gross weight, 23 lbs.

Each, . . \$6.50

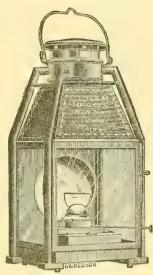


Fig. 1741.

RAILROAD TRI-COLORED INSPECTOR'S LAMP.

With Four Inch Reflector.

Five Inch Beveled Edge Front Glass. Showing Red, Green or White Light, as desired.

RAILROAD INSPECTOR'S LAMP.

Without the Tri-Colors.

Each, \$3.00

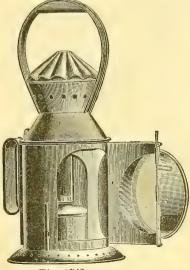
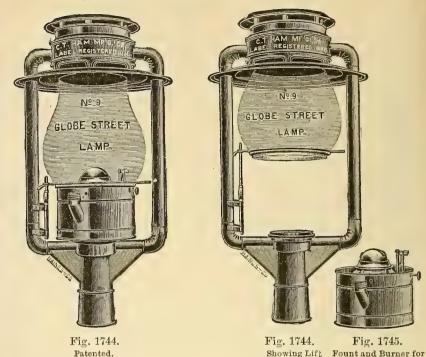


Fig. 1742.

CLOBE TUBULAR STREET LAMP.



Turned Wood Posts-6 feet above ground, 2 feet in ground.

Fig. 1743.

NO. 9 IMPROVED CLOBE TUBULAR STREET LAMP

Wire.

No. 9 Street Lamp.

With Bottom Lift Attachment for Raising Globe. Outside Wick Regulator. Automatic Extinguisher. No. 3 Globe. 1½ in. Wick. Patent Wind-break. These Globe Street Lamps have many new and modern improvements. Solid Elbows, Automatic Time Extinguisher, Bottom Lift Aattachment, etc., also the new Wind-break around the top of lamp, making it impossible for the wind to extinguish the light. It is the most perfect Globe Street Lamp made. The Patent Bottom Lift Attachment is a great improvement over the old way of raising the globe to light and trim, and for purpose of removing oil fount,

as the use of one hand only is required to raise the globe. The possibility of the globe dropping and breaking is positively avoided. The globe is easily removed to clean. By use of the Automatic Extinguisher the lamp can be set, when lighted, to burn a certain number of hours. It will then go out of its own accord, thus saving the trouble and expense of extinguishing. Gives a steady, bright light, free from all flickering. We guarantee this lamp to give perfect satisfaction. Packed in cases of 1 each. Net weight, 7 lbs.; Gross weight, 29 lbs. Weight of Posts, 25 lbs. net.

No.	102-A	No.	9	Globe		Lamp,			Foun	t.				Each, \$6.00
66	102-K	6.6	66		6.6	6.6	4.4	Glass	6.6					6.50
66	102-B	4.6	4.6	46	4.6	4.4	6.6	Brass	6.6					7.00
66	102-C	4.6	4 6	6.6	4.6	6.6	6.6	Coppe	r ··					7.00
Furnished with Colored Globes if desired.														
POSTS for Street Lamps, Turned Wood Each, \$2.00														
				1	BRAC	KETS	when	wante	dinp	lace o	of Pos	ts:		
No. 106. Iron Brackets, 24 inches long Each, \$1.00														
6.6	107.	6.6		66	$19\frac{3}{4}$		-	rnamei	nta⁄.					" 1.00
4.4	108.	6.6		66	$11\frac{1}{2}$	66 66								" 1.00

Fig. 1746.

SQUARE TUBULAR STREET LAMP.

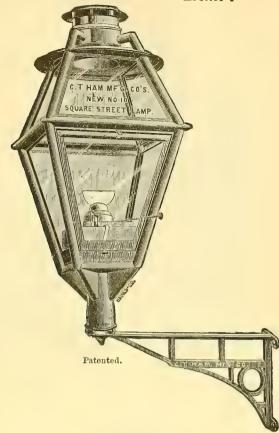


Fig. 1747.

NO. 10, NEW IMPROVED SQUARE TUBULAR STREET LAMP.

Outside Wick Regulator, Automatic Extinguisher, Patent Wind-break, 1½ inch Wick.

The above cut represents the NEW Improved No. 10 Square Tubular Street Lamp, which is constructed on the same principle as the celebrated No. 9 Globe Street Lamp, and is equal in every respect to the Globe Street Lamp in its burning qualities. It will not freeze up in cold weather, and will not smoke or blow out in the hardest winds. Gives a very bright light and entirely free from flickering. The burner is set corner-wise across the lamp so that the flat side of the flame is shown from each of the four sides of the lamp, thereby giving an equal light in all directions, and which also prevents the flame from striking the top lights of glass, which in other lamps is a serious defect, causing excessive breakage. By use of the Automatic Extinguisher the lamp can be set, when lighted, to burn a certain number of hours. It will then go out of its own accord, thus saving the trouble and expense of extinguishing. Packed in cases of 1 each. Net weight, 12 lbs.; gross weight, 35 lbs.; weight of posts, 25 lbs. net.

Fig. 1747. No. 10 Square Tubular Street Lamp, each
Also furnished with colored glass if wanted, and glass lettered (painted on) at additional cost.
Posts for the above, Turned Wood, each

BRACKETS

\$8.00

No. 106.	Iron Bracket	s, 24 inc							Each, \$1.00
" 107.	" k	19^{3}_{4}	6.6	ornan	nenta	1			" 1.00
" 108.	66	$11\frac{i}{2}$	٤ .						" 1.00

LOCOMOTIVE HEAD LIGHTS.



Round Door in side . Fig. 1748. We make any size or kind, with or without Signal Numbers, or to Blue Prints.

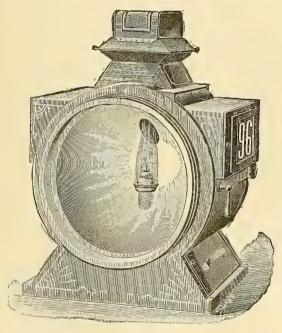


Fig. 1749.

18-inch Signal Number Special

23 inch, Signal No. Plain

Signal No.

Signal No. Plain

Signal No.

Plain.

Plain,

Plain

Round Door in

Round Door in

Plain Signal No., Round Door in

16 inch, Signal No.

23

20 20

18

18

18

side 18

side .

side . inch,

16 · "

inch,

DRUM HEAD LIGHT.

Door opens on the side. We make all sizes, with or without Signal Numbers.

The above Head Lights are all made plain black cases unless otherwise ordered,

Price, each

LOCOMOTIVE HEAD LICHTS.

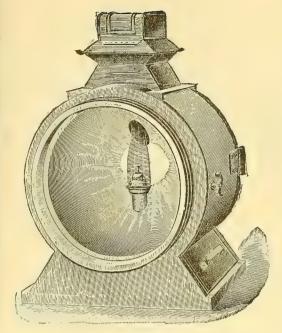


Fig. 1750.

18-INCH PLAIN

SPECIAL DRUM HEAD LIGHT.

Closed.

Door Opens on the Side.

We Make All Sizes.

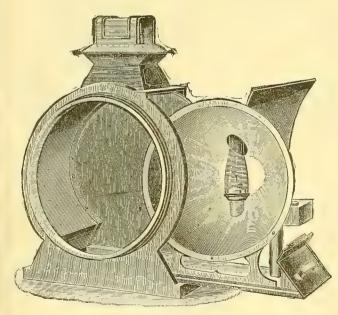


Fig. 1751.

IS-INCH PLAIN SPECIAL DRUM HEAD LIGHT.

Opened.

Showing the Inside, or Manner of Drawing from the Case, with Door Open on the Side.

Each, \$

LOCOMOTIVE HEAD LICHTS.

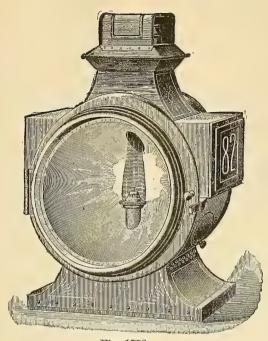


Fig. 1752.

16-Inch

ROUND SIGNAL NUMBER HEAD LIGHT.

Door opens on the front.

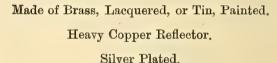
We make any size,

with or without Signal Numbers.

Each, \$

ELECTRIC HEAD LIGHTS.

10-INCH ELECTRIC HEAD LIGHT.



Malleable or Brass Supports.

This is used for Hood of Car.

Each, \$



Four inches deep.

Something new to bolt on dash of car.

Made of Iron, nicely Painted.

Copper Reflector. Silver Plated.

Does not project beyond Bumpers, therefore not liable to be smashed in collision.

Each, \$

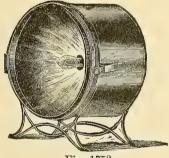


Fig. 1753.



Fig. 1754.

ELECTRIC HEAD LIGHTS.

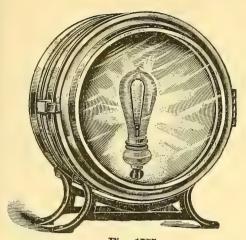


Fig. 1755. HEAD LICHT.

Brass or Bronze Drum. 11-inch Reflector.

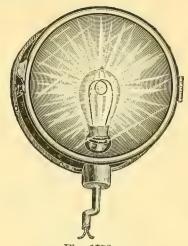


Fig. 1756.

DASH LIGHT.

To Bolt on Dash.

Furnished with Brass Door on Hinge. 8, 9 and 11-inch Reflector.

Each \$

DASH HEAD LICHTS.

To Hang on Dash.

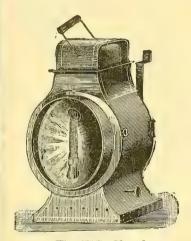


Fig. 1757—Closed.

10-inch

MOTER CAR OIL HEAD LIGHT.

Doors Open on the Side.

Hand Wheel Outside of Case.

Also Made 12-inch with Locotive Head Light Burner.

Fig. 1757-Opened.

10-inch

OIL HEAD LIGHT.

Showing the Inside or Manner of
Drawing from Case.
Can Draw Reflector with
Chimney in Place.

Are not obliged to open the door to raise or lower wick.



Fig. 1758.

TEN INCH SQUARE OIL HEAD LIGHT.

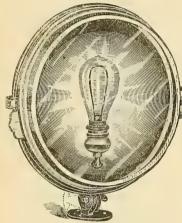
With Dash Board Attachment, For Cable or Motor Cars,

Case— $21\frac{3}{4}$ inches high, 12 inches wide, $9\frac{1}{2}$ inches in depth.

Reflector—Made of Copper and Silver Plated. 10 inches diameter, 3\frac{3}{4} inches in depth.

Burner—Regular Locomotive Head-light Pattern. Takes circular "Moehring" wick 5 inches long.

Chimney—3 inch Argand or "Moehring" chimney, Ham Pattern,

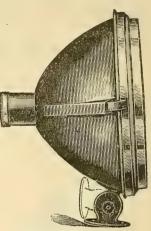


Front View. Fig. 1759.

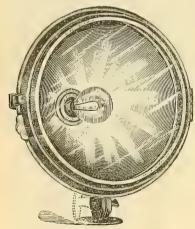
ELECTRIC HEAD LIGHTS.

NO. 45 ELECTRIC

11 inch Reflector.



Side View. Fig. 1759.



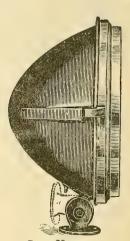
Front View. Fig. 1760.

NO. 40

ELECTRIC HEAD LIGHT.

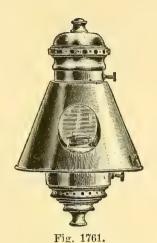
11 inch Reflector.

Each



Side View. Fig. 1760.

CAB OR CAUCE LAMPS. BRASS AND NICKEL-PLATED.



LOOSE GLOBE.

Brass	Cab	Lamp		Dozen,	\$36.00
NP.	6.6	6.6		66	48.00



Fig. 1762.

PLASTERED GLOBE.

Brass	Cab	Lamp		Dozen,	\$36.00
N. P.	4.6	66		6.6	48.00

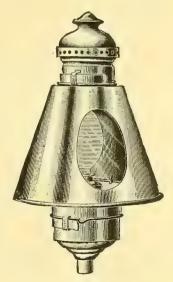


Fig. 1763.

	5"		
CAB	LAMP,	WITH	HOOD.
			\$36



Fig. 1764.

CAB L	AMP, I	PAI	NTED.
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Per dozen \$36. Per dozen \$30	dozen .	er dozen · · ·	\$36. Per dozen		. \$30.00
--	---------	----------------	-----------------	--	-----------

CAB LAMP CLOBES.

Per dozen	•	۰	0		۰		•		•	0	6	a	9	\$4.00
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SEMAPHORE LENSES.

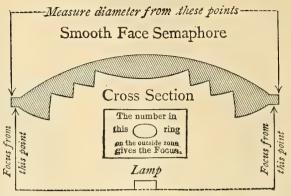
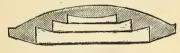


Fig. 1765.



SMOOTH FACE SEMAPHORE.

Fig. 1766.

Net prices each.

Diameter in Flint	3	3_{4}^{3}	$3\frac{7}{8}$	4	$4\frac{1}{8}$	$4\frac{1}{4}$	$4\frac{1}{2}$	5	$5\frac{3}{8}$	6	$6\frac{3}{8}$	7	73	8	83	9
Flint	\$0.10	.13	.14	.14	.15	.15	.17	.20	.22	.33	.38	.55	.66	.77	$.8^{\circ}$	1.20
Green																
Blue																
Ruby	\$0.23	.28	.30	.30	.33	.33	.35	.40	.45	.60	.65	1.00	1.25	1.45	1.55	1.90



PLAIN BULL'S EYES.

Fig. 1767.

Net prices each.

Inches				2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	31	$3\frac{3}{4}$	4	41	$4\frac{3}{3}$
Inches Flint.														
Green														
Ruby .		•	٠	\$0.20	.23	.26	.30	.34	.38	.42	.46	.50	.52	.54

Net prices each.

Inches Flint .		$4\frac{1}{4}$	$4\frac{1}{2}$	5	$5\frac{3}{8}$	6	$6\frac{3}{8}$	7	73	8	83	9
Flint .		\$0.20	.25	.35	.50	.70	.85	1.00	1.20	1.40	1.65	2.00
Green .												
Ruby .		\$0.56	.60	.70	.90	1.10	1.30	1.55	1.80	2.10	2.50	3.00

SILVERED CLASS REFLECTORS.

Inches .			3	4	5	6	7	8	9	10	11	12	14	16
Per dozen	۰	•	\$3.75	4.00	4.25	5.00	6.00	7.00	8.00	9.25	10.75	12.50	36.00	60.00

NICKEL-PLATED REFLECTORS.

Inches .			4	5	6	7	8	9	10
Per dozen			\$2.00	2.25	2.50	2.75	3.25	3.75	4.50

FRESNELS AND SECTIONS.

In Whole, Half, Third and Quarter Sections.

Prices quoted on application.

CASKETS.

PLAIN, MIXED, AND PURE CASKETS AND RINGS.

Plain or cloth insertion, Gaskets and Rings. Regular shapes and sizes.

$\frac{1}{16}$ inch or less in thickness	s, per	lb.,			\$1.25
$\frac{3}{32}$ inch and upwards,					1.00

There is one-ply of cloth to every $\frac{1}{16}$ inch thickness. Five cents per pound additional will be charged for each extra ply of cloth. The cloth, whether used as an insertion or on the outside, counts as one-ply.

MIXED OR FIBROUS CASKETS AND RINGS.

		Regul	ar Si	apes a	and Si	zes.			
$\frac{1}{8}$ inch or less in thickness,	per	· 1b.,	٠						\$0.90
⁵ / ₃₂ inch and upwards,									.80

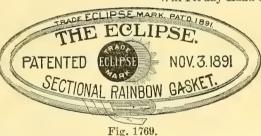
PURE CASKETS AND RINCS. Regular Shapes and Sizes.

			7408	WILLIAM NO.	aupos	WILL KI	LECES			
Per lb.,										\$1.50

Gaskets and Rings, either plain, mixed, or pure, of unusual size, thickness, etc., made to order at special prices.

THE ECLIPSE SECTIONAL RAINBOW CASKET.

Will Fit any Hand or Man-Hole.



Length and Weight per Box;

콣	inch	diam.	36	feet,	31	lbs.
$\frac{1}{2}$	6.6	66	36	66	$5\frac{1}{4}$	66
58	66	66	24		6	66
34	4.6	66	18	66	$5\frac{3}{4}$	46

3 inch for Pipe Unions.
1 inch for Hand-Hole Plates.
5 and 4 inch for Man-Hole Plates.

Price, per lb., \$1.00

A special size of 4 inch Eclipse. 48 feet, in box, weight about 1 lb. Price, per lb., \$2.00.

CATJUNE 2.52

Fig. 1768.

CAN SCREWS WITH TIN INSIDE SCREWS AND ZINC OUTSIDE

SCREW CAPS.
Price, Per Gross.

Size, inches, .		1	34	1	$1\frac{1}{4}$
Cork Lining, .		\$5.45	\$6.45	\$7.30	\$9.30
Treated Felt Paper	Lining,	5.15	6.10	6.95	8.65
Treated Wood Pulp	Lining,	5.10	6.05	6.90	8.60
Wax Paper Lining,		4.95	5.85	6.50	8.10
Size, inches, .			11	$1\frac{3}{4}$	2
Cork Lining, .			\$11.00	\$15.35	\$19.35
Treated Felt Paper	Lining,		10.45	14.20	17.10
Treated Wood Pulp	Lining	,	10.25	14.05	17.55
Wax Paper Liping,			9.60	13.15	16.45
				_	

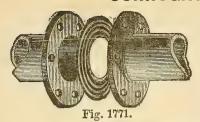
REGULAR TIN SCREWS.

Wi	th Flange	on Out	side Screw	Cap.	
Size, inches,	1	3	1	$1\frac{1}{4}$	11
No Lining.	\$2.95	\$3.65	\$4.05	\$5.45	\$6.25

Fig. 1770.

	KEUUL	AR III O	OKE WO.			
Witho	ut Flan	ge on Outs	ide Screw	Cap.		
Size, inches		1/9	34	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Cork Lining,		\$3.65	\$4.50	\$5.05	\$6.90	\$7.95
	•	3.30	4.15	4.75	6.25	7.40
Treated Felt Paper Lining,			3.90	4.30	5.75	6.55
Wax Paper Lining,		3.15				
Treated Wood Pulp Lining,		3.25	4.10	4.75	6.20	7.20
Tienton Wood C						

CORRUCATED COPPER CASKETS.



Three to six corrugations are all that are necessary, so that the space within the bolt holes usually determines the width of the Gasket. In cases where the flanges are thin, and for this reason liable to bend when the bolts are tightened, it is advisable to extend the copper Gasket to the full width of flange. This will, of course, require the cutting of bolt holes in the Gasket.

List of Standard Size Corrugated Copper Gaskets.

Standard		Cost of One	Full Width	Cost of One
Size.	(Narrow).	Gasket.	of Flange.	Gasket.
1 inch	$1\frac{1}{4}$ x $2\frac{1}{8}$	\$0.04	14x 4	\$0.23
$1\frac{1}{2}$ "	$1\frac{3}{4}$ x $2\frac{3}{4}$.07	$1\frac{3}{4}$ x $4\frac{1}{2}$.27
2 "	$2\frac{1}{4} \times 4\frac{1}{4}$.20	2 1 x 6	.49
$\frac{2\frac{1}{2}}{3}$ "	$2\frac{3}{4}$ x $4\frac{3}{4}$.23	$2\frac{3}{4}x$ 7	.65
3 "	$3\frac{1}{4}$ x $5\frac{1}{2}$.31	$3\frac{1}{4}$ x $7\frac{1}{2}$.71
31 "	$3\frac{3}{4}$ x 6	.35	$3\frac{3}{4}$ x $8\frac{1}{2}$.91
4 "	$4\frac{1}{4}$ x $6\frac{1}{2}$.38	4½x 9	.99
$\frac{4\frac{1}{2}}{5}$ "	$4\frac{3}{4}$ x 7	.42	$4\frac{3}{4}$ x $9\frac{1}{4}$.99
5 "	$5\frac{1}{2}$ x $7\frac{3}{4}$.46	$5\frac{1}{2}$ x10	1.09
6 "	$6\frac{1}{2}x \ 8\frac{7}{8}$	$.57\frac{1}{2}$	$6\frac{1}{2}x11$	1.24
17 66	$7\frac{1}{2}$ x10	.69	$7\frac{1}{2}$ x12 $\frac{1}{2}$	1.57
8 "	$8\frac{1}{2}x11$.77	$8\frac{1}{2}x13\frac{1}{2}$	1.73
9 "	$9\frac{1}{2}x12\frac{1}{4}$.94	$9\frac{1}{2}x15$	2.11
10 "	$10\frac{1}{2}x13\frac{5}{8}$	$1.18\frac{1}{2}$	$10\frac{1}{2}$ x15	2.29
13 "	$12\frac{1}{2}x15\frac{5}{8}$	$1.38\frac{1}{2}$	$12\frac{1}{2}x19$	3.22
14 "	$14\frac{1}{2}$ x $17\frac{3}{4}$	1.65	$14\frac{1}{2} \times 21$	3,63
15 "	$15\frac{1}{2}x19^{-1}$	1.90	$15\frac{1}{2}$ x $22\frac{1}{4}$	4.01

VULCABESTON ROUND PRESSED ROPE CASKETS.

Made expressly for Companion Flange Joints of standard sizes. Ready for use; no waste,	No. R 1 R 2 R 3 R 4 R 5 R 6 R 7 R 8 R 9 R 10 R 11 R 12 R 13 R 14 R 15 R 16 R 17 R 18	Size Pipe or Valve. 2 21 3 31 4 41 5 6 7 8 9 10 12 14 15 16 18 20	Inside Diam. 3 3444455x7566x6x6x6x6x6x6x6x6x6x6x6x6x6x6x6x6x	4 4444458785858587858785844 58785451284 902134 58785451284 102134 2034	Thickness. 18-18-18-18-18-18-18-18-18-18-18-18-18-1	\$0.17 .18 .19 .21 .22 .23 .24 .26 .44 .48 .54 .58 .72 1.10 1.20 1.40 1.60 1.80
Fig. 1772.				4	41414	

Other sizes made to order at proportionate costs.

MINERAL WOOL.

Kind.			Pounds per Cubic Foot.	Square foot, 1 inch. Thick.	Cubic feet to Ton.	Per 100 lbs. in Ton Lots.	Per Cubic Foot at Factory.
Ordinary Slag Wool			12	1 lb.	166	\$1.25	\$0.12
Selected "			9	3 44	223		
Extra	-	-	6	1		1.92	.15
Ordinary Rock Wool	•	•	_	1 66	333	4.25	.24
Selected "	•	•	$\frac{12}{2}$	T	166	2.25	.24
			8	2 66	250	4.25	.32
Extra	4	•	6	$\frac{1}{2}$ "	3 33	7.25	.42

STEEL WOOL

HAIR FELT.

In Bales 300 Square Feet. 3 Feet and 6 Feet Wide.

Thickness, inches $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 Per sq. foot . , \$0.03\frac{1}{4} \cdot .03\frac{1}{2} \cdot .03\frac{3}{4} \cdot .04 \cdot .04\frac{1}{4} \cdot .05\frac{1}{2} \cdot .06\frac{3}{4} \cdot .08 \cdot .10\frac{1}{6}

ASBESTOS MILL BOARD.



Fig. 1773.

Fireproof and acid proof. Made soft, medium and hard. Stock size, 40x40 inches, 42x44 inches and 44x48 inches. Special sizes to order.

Thickness, inches $.\frac{1}{32}, \frac{3}{64}, \frac{1}{16}, \frac{3}{32}, \frac{1}{8}, \frac{3}{16}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}$ Case lots, per lb. .07 Broken cases, per lb. .10 Cases weigh about 250 lbs.

ASBESTOS ROLL MILL BOARD.

In rolls of 312 to 18 inch inclusive in thickness, 36 to 44 inches wide, per lb., 10 cents.

ASBESTOS BUILDING FELT.

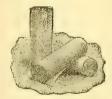


Fig. 1774.

Made of of the best quality of Asbestos Fibre. Possesses the highest fireproof and non-conducting qualities, odorless, acid and vermin proof and invaluable as a protection against fire. Used for lining passenger and freight cars, sheathing houses, lining between floors and under slate, tin and iron roofs, also for wrapping furnace pipes. In rolls weighing 75 to 100 pounds, 36, 40 and 42 inches wide. Weighing from 6 to 16 pounds to 100 square feet. Per lb.

ROOFING MATERIALS AND COAL TAR PRODUCTS.

2-ply Roofing	, 108	squar	e feet	to the	roll,	per	roll			4		\$0.80
3-ply "	108	_	66	66	66	61				٠		1.10
Tarred Single	Felt,	324	66	6.6	66	(40	lbs.),	per	$_{ m net}$	ton		36.00
" Slater	S 66	500	6.6				lbs.),		6.6			45.00
Rosin Sized S	heath	ing,	500 sc	quare fe	et to	the	roll,		66			40.00
Roof Coating	, in b	arrel	lots,	per gal								. 15
" Paint,				٠.6								.30
Black Varnisl	1,	4.6		6 6				٥				.35
Roofing Pitch	l.	66		per bbl			•		0	٥	J	2.25

ASBESTOS CORD.

Strong hard finished 4 Strand Cord, a inch diameter. Put up in 1 lb. Balls, and 5 and 10 lb. Reels. About 130 feet to pound.

Acid and Fire Proof,

Per lb., \$0.80

\frac{1}{4} inch thick,

Per sheet, \$8.00.

VULCABESTON SHEET PACKING.

For Joints for Steam, Gas, Hot Air, Oil and Ammonia Fittings.

This Packing is made in sheets 35 in. x 35 in. and in rolls. In ordering, care should be taken to specify in what shape the packing is wanted, as unless specified "in rolls," sheets will be furnished. Packing for hot air and ammonia is especially made for the purpose, and if to be used for either of these purposes, mention should be made to this effect in ordering.

IN SHEETS 35 x 35 INCHES.

 $\frac{1}{32}$ inch thick, Per sheet, \$2.40.

1 inch thick, $\frac{1}{16}$ inch thick, 3 inch thick, Per sheet, \$3.00. Per sheet, \$4.60. Per sheet, \$7.00.

Soft Sheet Packing is supplied for very rough joints.



Fig. 1775.

Price per lb.,

JENKINS' STANDARD '96 PACKING.

A Perfect Joint Packing.

It is made one YARD wide, and in thickness $\frac{1}{32}$, $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ inch.

82	thick	weighs	abou	ıt 3	Ibs.	per	square	yard
1 76	. 44	6.6	4.6	6	4.6	4.6	6.6	4.6
3 2	+ 6	6.6	4.4	9	4.6	44	4.6	66
18	66	44	6.6	12	4.4	6.6	4.6	4.6
3 1 6	6.6	6.6	4.4	18	61	6.6	6.6	6.4
$\frac{1}{4}$	4.6	4 -	4.6	24	6.6	4	66	66
		\$0.9	20					

RINGS FOR RAILROAD WORK. VULCABESTON MOULDED



No. 2.

Concave and Convex Moulded Packing Rings for use on valve stems, piston-rods, air-brake pumps, etc. Many of the large railroad systems have adopted these packing rings for steam and air ends of Westinghouse and New York air brake pumps, and for locomotive valve stems and piston-rods.

Brake Pump rings are:

No. $102\frac{1}{3}$, Plain Split Ring, $1\frac{1}{3}$ in. x $1\frac{1}{4}$ in. x $\frac{3}{6}$ in. for Westinghouse Air Brake passenger service 6 in. and 8 in. pumps.

No. 400, Concave and Convex Rings, $1\frac{15}{16}$ in. x $1\frac{1}{4}$ in. for same service, 6 in.

and 8 in. pumps. No. 544, Concave and Convex Rings, $2\frac{1}{32} \times 1\frac{3}{3}$ in. for W. A. B. Co. freight

service, 9½ in. pumps. No. 168, Concave and Convex Rings, 2 in. x 11/4 in. for New York Air Brake

Co., all sizes pumps. Price per set (4 rings) \$0.22.

PRICES OF OTHER SIZES ON RECEIPT OF SPECIFICATIONS.



Will stand Steam, Oils or Acids.

HARD DISCS FOR STEAM.

SOFT DISCS FOR COLD WATER.



Fig. 1777.

ASBESTOS PISTON ROD PACKING.

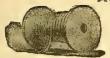


Fig. 1778.

Made of the finest long fibre Asbestos, and spun and twisted into ropes of any desired size from $\frac{1}{4}$ inch to 2 inches in diameter. This packing is very pliable, the best and most durable known for locomotives, marine engines, etc. Not affected by acids, dampness or heat. Put up on reels 10, 25 and 50 pounds each. Price per lb., 35 cents.

ASBESTOS WICK PACKING.



Fig. 1779.

Used for packing around small steam valves, pumps, valve stems, etc. The strands can be easily separated. Acid and fire-proof. Put up in $\frac{1}{4}$, $\frac{1}{2}$ and 1 lb. balls. Price per lb., 35 cents.

ASBESTOS BRAIDED PACKING.



This is composed of a pliable, elastic, twisted core covered with a heavy Asbestos braid, thus keeping the inside strands from loosening, or the packing from getting out of shape. Sizes, $\frac{1}{8}$ to 1 inch or larger. Put up on reels of 10, 15, 25 and 50 lbs. each. Price per lb., 35 cents.

Fig. 1780.

ASBESTOS BRAIDED RUBBER CORE PACKING.

This packing is of the same construction as Asbestos Braided Packing, excepting the core is of best quality rubber instead of asbestos core. The rubber core adds somewhat to its pliability. Put up same as regular piston packing. Price per lb., 35 cents.

ASBESTOS WOUND CLOTH PACKINGS.



Fig. 1781.



Fig. 1782.



Fig. 1783.



Fig. 1784

These packings are made in several different styles, with or without rubber core, also with metallic insertion. They are formed of successive layers of Asbestos Cloth, each layer having a thin coat of rubber composition to make the layers adhere to each other. When the cloth is wound to form a certain size or thickness the packing is given a coating of India rubber solution. These packings are very firm and elastic, absolutely waterproof, not affected by heat, frictionless and very efficient. Used for all kinds of high pressure work generally and also where moisture will be encountered. Especially recommended for marine work. Put up in coils or on reels, also in boxes 6 to 8 lbs. each. Price, round or square, per lb., 75 cents.

INDRUBESTOS PACKING.



This packing is composed of asbestos so combined with India rubber and materials as to form a packing that will always remain pliable and make a tight joint. It is so constructed that the lubricating composition permeates the entire packing, thus rendering it doubly useful, and as the exposed surface is worn by friction it always remains the same until the packing is taken out. In sizes from \(\frac{1}{4} \) inch to 2 inches. Put up on reels. Price per lb., 75 cents.

Fig. 1785.

VULCANIZED ASBESTOS PISTON-ROD PACKING.

This is a flexible rope packing braided from strong twisted strands of pure Asbestos combined with India Rubber and vulcanized. It is an improvement upon our Pure Asbestos Packings, and is superior to all others for piston-rods, valve stems, pump valves, etc., where high pressure steam, hot water, oils, acids, ammonia, etc., are used, and for locomotive, stationary and marine engines.

Size, inches $\frac{1}{10}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{6}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{1}{2}$ No. of feet $\frac{1}{2}$ $\frac{450}{225}$ $\frac{225}{128}$ $\frac{1}{25}$ $\frac{25}{20}$ $\frac{16}{16}$ $\frac{9}{9}$ $\frac{6}{2}$ $\frac{5}{12}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{12}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{2}$

PACKING.

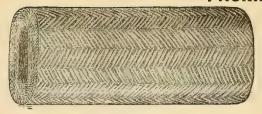


Fig. 1786.



Fig. 1787.



Fi

CUM CORE PACKING.

No. 1 Diamond is made oblong in shape, with pure rubber core and best quality of flax yarn. We guarantee this brand of packing to be of the best.

Per pound \$0.60

No. 2 Diamond is made round in shape, with pure rubber core and best quality flax varn.

Per pound

Put up in boxes of five to ten pounds each, or on reels 25 to 50 pounds. Both packings are thoroughly lubricated.

SQUARE FLAX PACKING.

Made on improved braiding machines, from long line Russian flax; this packing is perfeetly constructed and thoroughly lubricated, no better goods are produced.

No. 1 Per lb., \$0.50 .45

D... 11 #1 00

. Per lb., \$1.20

ig. 17	788.	Both	are	put	up	$_{ m in}$	boxes	of	five	to	ten	lbs.	each.
	CARLOCH	PA	CKI	ING									

									PAU								
Garlock's	Spiral	Pack	king							۰						Per lb.,	\$1.20
4.4	Ring	64	J													"	1.20
6.4	Section	nal R	ling	Pac	king											"	1.20
			0		0				PAC					-			
Madain 1	D alla al		ο <u>ρο</u> 1	ha c	l											D 11.	ΦΩ ΩΩ
Made in 1	rons ar	jout «	200 1	bs. e	eacn,	327	16, 3	ੜਾ ਉਾਂ	î 6 y 4 y	8, 2	пен	•	•	•		Per Ib.,	\$0.00
					1	บรบ	DUR	MAIS	PAG	CKI	IC.						
Usuduria	n Sheet	. 3. 1	to 1	inch	thic	k										Per lb.,	\$0.80
		7 32	-12						A CKI					•		,	W 0100
									100 lb								
T. 12 //	4.44															T) 11	40.42
Italian "	$\Delta^{\prime\prime}$.								4					•			\$0.15
er er	В".								-				•			4.6	.14
66 66	X" .															6.6	.12
Americai	1.															6.6	.15
Russia										,						4.6	.25
Square E	Iemp B	raide	d													4.4	.30
-									PAC								
Dan Mine	. D		1	1 ~: =	00											D 11.	Φ1.00
For Mine	rump	s, erc	., ai	1 SIZ	es							4			•	Per 10.,	\$1.00
					EU	REK			TON	PA	CKI	IG.					
									eam.								
Oval, wit	h rubb	er ce	ntre,	, all	sizes			e 11	D .							Per lb.,	\$0.80

In 5 lb. Boxes. CLOBE PACKING.

Sizes & inch and less .

16 OV6	r } inc	eh												. " 1.00
						ECONOR	/IV	PAC	KIN	n.				
All sizes	•		•								٠			. Per lb., \$0.60
Alleizos						CLIMA	X F	PACK	INC.					. Per lb., \$0.15
111 51205	•	•	•	*	,	EAGLE					•	•	•	. теги., фоль
All sizes	ø		1			EAGLE		ACK	114.01.					. Per lb., \$0.15
						AJAX	P/	ACKI	NG.					, ,
All sizes	0				4									. Per lb., \$0.12

EMPIRE PACKING. All sizes . Per lb., \$0.30

Fig. 1790.

PEERLESS SPIRAL PISTON AND VALVE ROD PACKING.

Put up in paper boxes, weights and lengths as follows:

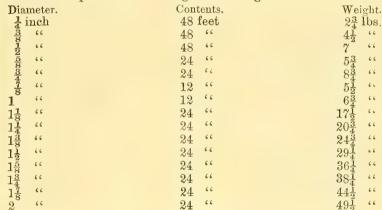
		,	0	0	
Diam.	Feet.	Pounds.	Diameter.	Feet.	Pounds.
$\frac{1}{4}$	84	3	$\frac{7}{8}$	24	$7\frac{3}{4}$
1 <u>6</u>	72	$3\frac{1}{4}$	1 <u>5</u>	24	81
16 3 8	72	$4\frac{1}{2}$	1	24	10
7 7 5	60	4	1분	12	61
10	36	$4\frac{1}{3}$	$1\frac{3}{4}$	12	71
92	36	$5\overline{\overline{3}}$	13/8	12	81
1 b 5 8	36	7	1 1 3	12	10
11	24	5	18	12	124
3	$\frac{24}{24}$	51	18	12	143
13	24	61	2	12	18
16	70 I	- 2	~	LN	10

When first put in, screw glands up with wrench to shape packing, take 2 or 3 turns; release glands; then screw them up with thumb and forefinger only until packing is fully expanded. Excellent for high speed engines. Price, per lb., 80 cents.

HONEST JOHN HYDRAULIC RAINBOW CORE PACKING.

For Water and Hydraulics.

Put up in Boxes. Weights and lengths as follows:



Price, \$1.00 per lb.

This packing is made both straight and in spiral form.

HERCULES COMBINATION METALLIC STOP VALVE PACKING.

Put up in boxes. Weights and lengths as follows:

-	ere are			0		
Diameter.			ents.			eight
1 inch		24 f	feet		$1\frac{3}{4}$	lbs
<u> </u>		24	6.6		31	6.6
<u>i</u> "		12	66		$2\frac{3}{4}$	4.4
5 66		12	66		$4\frac{1}{4}$	66
1 inch 38 11 12 11 11 11 11 11 11 11 11 11 11 11		6	6.6		3	h.
7 66		6	66		31	
18 "		6	4.4		$4\frac{3}{4}$	6.4
11/8 "		6	66		6	6.
14 "		6	66		r 1	
4		0			* 2	

Keeps the stem absolutely clean. Always tight. Price, \$2 50 per lb.

This packing is made both straight and in spiral form

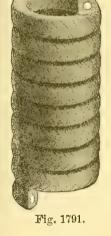




Fig. 1792.

MILLER'S SOAPSTONE ACKING

Is a twisted rope of cotton yarn and soapstone, with a braided cotton cover, and is an excellent cheap packing. Put up in coils of about 100 lbs, each Per lb., \$0.12 STEAM PACKING. CLOTH INSERTION. Cloth on one or both sides. One-Ply. Two-Ply. Three-Ply. Thickness. Four-Ply. Per Lb. Per Lb. Per Lb. Per Lb. 1 inch. \$0.70 .65 66 .60 .63 .66 66 .55 .58 .61 .58 .55.61 .55 .58 Fig. 1793. .55 There is one-ply of cloth to every \(\frac{1}{16}\) inch thickness. Each cloth, whether insertion or on outside, to count as one-ply. Three cents per pound additional will be charged for each extra ply of cloth. PURE SHEET PACKING OR VALVE CUM. Pure Sheet Packing or Valve Gum is made 40 inches in width, and of any thickness or length desired. Per lb. \$1.40 PISTON PACKING. (TUCK'S.) ROUND PISTON PACKING. \$0.85 Made in lengths of 20 feet, from \(\frac{1}{4} \) to 2 inches diameter. Fig. 1794. SOUARE PISTON PACKING. \$0.85 Made in lengths of 20 feet, from 1 to 2 inches. Fig. 1795. SOUARE PISTON PACKING WITH RUBBER BACK. Per lb. . Made in lengths of 20 feet from \(\frac{1}{4}\) to 2 inches. Fig. 1796. SPECIAL HYDRAULIC OR PUMP PISTON PACKING. \$1.00 Made from a very fine and closely woven duck, and in lengths of 20 feet, from 1 to 2 inches. Fig. 1797. SELDEN'S PACKING. IN 10 AND 20 FOOT COILS. Rubber Core \$0.60 Without Rubber Core .50



SOLID BRAIDED

RAILROAD BELL CORD.

Fancy Cotton.

Fig. 1798.

The regular style is drab in color, with a spiral pattern in red, yellow and blue. Special styles can be made to order. In coils of 1,000 feet each, unless otherwise ordered.



Fig. 1799.

SOLID BRAIDED RAILROAD BELL CORD.

Plain Colors.

In coils of 1,200 feet each, or otherwise as ordered.

					DIZI	2000				
Number .						6	17	8	9	10
Inches diam,			• `			3 7 6	$\frac{7}{32}$	1	39	-5 T.6
			•	-	Ť	1 0		R	0.4	1.0
White Cotton			35 ct	s, per	· lb.	White (Cotton		. 30 cts.	per lb
Drab Cotton			40 "	6 6	66	Drab C	otton		. 35 "	66
Mahogany Cott	ton, air	•								
signal			45 "	6	6				•	
Italian Hemp			40 "		6					

RAILROAD BELL CORD.

Drab, with Italia	$\mathbf{n} \cdot \mathbf{Hemp}$	Cer	ıtre					35 cts.	per lb.
Special Braided								20 "	- 66
India, No. 1 .								18 "	6.6
" No. 2	•						Ī	16 "	66
Twisted Hemp							•	15 "	66
	6				-			10	

ENGINE BELL CORD.

Drab Cotton, $\frac{3}{8}$ -inch diameter 40 cts. per lb.

TROLLEY CORD

30 cts. per lb.

Water-proof, No. 10 (5/16-inch diameter)

BELL CORD COUPLINGS.



Size for No. 8 cord unless ordered for No. 9.

Prices—Complete with Screws:

Japanned (mal. iron) . . \$0.60 cts. per doz. hooks Brass 1.00 " " " " " Nickel-plated (brass) . . 1.50 " " "

Directions—Draw the end of the Cord through the Coupling, and insert the screw far enough to bury its head. Then pull the Cord back into place,

SILVER LAKE PACKING.

Silver Lake Packing requires no oil, which with hemp packing is a source of much expense and waste. It requires less attention and fewer renewals than hemp; does not cause such frequent annoyance by giving out at the wrong time; and does not score the rods—a great objection to hemp.

Silver Lake Packing is very light weight, making its cost per foot less than other manufactured packings. Put up in coils of about 100 lbs, each, 20 cts, per lb.

LOCOMOTIVE PACKING

Is a modification of Silver Lake Packing, being saturated with a material which fits it for the needs of those engineers who want a cotton packing containing grease, and particularly adapts it for either pumps, valve stems or piston rods.

BURLAPS.

			li.	ONL	MEG	•						
Weight				17	oz. 8	oz.	9 oz.	10	oz.	11 (oz.	12 ez
_		9			015, 0	. 02.1,	0 02,				•	1/0 01
Price per yard, 40		•	•	. \$								
66 66 66 48	3 "											
66 66 66 146	3 66											
* (,	5	•	•								
			V	VEBE	BING	e e						
Width, inches .							$1\frac{3}{4}$		3		31	4
			•	• •	•	•			0		02	-1
Price per piece, 7	5 yards		•				\$					
				TO	M							
				_	W.							
Choice N. Y. Stat	e, in 300	lb. b	ales .					•		Per	· lb.,	\$
No. 1 Western,	" 100	4.6	66				٠			46	66	
Tio. I Western,	100			•		•	•	•	•			
				TWI	NE.							
Stitching Twine,	Mag 9ty s	md 40	y Ocar	awan						Por	116	\$0.54
0					•	•	•	•	•			
46 46	" 14	" 12	} '		•		•			66	66	.45
66 66	" 10			6.6						66	66	.35
Spring "	Best Rus	aion T	T. amara		•			·	•	66	6.	.22
1 0			пешр	•	•	•	•	•	•			
66 66	India La	id .					•	•		66	66	.16
			2	-		=0						
014			HEM	PT	WIN	E5.	. 4					
Size							$4\frac{1}{2}$		5			6
C. X. Russian .					Per 1	b. \$	0.14		.15	í		.14
C. X. American			Ī			66	.13		.14			.13
	0 5			•								
D. India					66	4.6	$.11\frac{1}{2}$.12	2 <u>5</u>		$.11\frac{1}{2}$
			_									
			S	PON	GES.							
Best Selected, lar	ge .						,.			Per	· lb.,	\$
	_			•	•	•		•	·	66	66	*
Selected, medium	1.	•		•	•	•	B	•	•			
Common .										66	66	
	New Value					-		20				
	KW I	TAN	C.	IN S	EAT	RE	ATE	15.				
Large										Per (doz.,	\$6.00
Medium										66	66	4,00
medium	• •	•		•	•			•	•			4,00
		W	100	D A	LCOI	HOL						
Extra Refined, 9	E mon an						_			D	1	₽
				•	•		•	•	•		gal.,	•
Special " S	97 " "		•							66	66	
Alcholene .										66	66	
			•	•	•	•	•		•	66	66	
Columbian Spirit		•	•		•	•	•	•	•	• • •	***	
	9	SPIE	PITS	, TU	RPF	NTI	NF					
* TO 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										TD.		
In Barrels, shipp							•			Per	gal.	, \$
Spirits, in cases,	"Pine T	ree" I	Brand	, two	5-gal.	cans				66	66	
,												
			FIL	ISEE	D O	IL,						
Raw	,									Per	gal.	. \$
						·	·		•		866	, w
			•				•	•	•	•		
Boiled	• •											
Boiled	CAST	OR.	OIL	FO	R LI	JBR	CATI	NC	_			
	CAST	OR	OIL	FO	R LL	JBR	CAT	NC		D		
In Barrels .	CAST	OR	OIL	FO!	R LU	JBRI	CATI	NC			gal.	, \$
In Barrels .	CAST	OR	OIL	FO!	R LU	JBRI	ICATI	NC :			gal.	, \$
In Barrels . In 5-gal, Cans	CAST				•		•			66		, \$

WIDE DUCK LIST.

Nos.	0	1	2	3	4	5	6	7	8	9	10	11	12
26 in.	\$0.40	\$0.38	\$0.35	\$0.33	\$0.31	\$0.29	\$0.27	\$0.27	\$0.25	\$0.23	\$0.21	\$0.19	\$0.17
28 "	.43	.40	.38	.36	.34	.31	.29	.29	.27	.25	.22	.21	.19
30 "	.46	.43	.41	.38	.36	.34	.31	.31	.28	.27	.24	.22	.20
32 "	.49	.46	.44	.41	.38	.36	.33	.33	.30	.28	.26	.24	.21
34 "	.52	.49	.46	.44	.41	.38	.35	.35	.32	.30	.27	.25	.23
36 "	.55	.52	.49	.46	.43	.40	.38	.37	.34	.32	.29	.26	.24
38 "	.58	.55	.52	.49	.46	.43	40	.39	.36	.34	.30	.28	.25
40 ''	.61	.58	.54	.51	.48	.45	.42	.41	.38	.35	.32	.29	.26
42 ''	.64	.60	.57	.54	.50	.47	.44	.43	.40	.37	.34	.31	.28
44 ''	.67	.63	.60	.56	.53	.49	.46	.45	.42	.39	.35	.32	.29
46 "	.70	.66	.62	.59	.55	.51	.48	.47	.43	.41	.37	.34	.30
48 ''	.73	.69	.65	61	.58	.54	.50	.49	.45	.43	.38	.35	.32
50 "	.76	.72	.68	64	.60	.56	.52	.51	.47	.44	.40	.37	.33
52 "	.79	.75	.71	66	62	.58	.54	.53	.49	.46	.41	.38	.34
54 ''	.82	.78	73	.69	.65	.60	.56	.55	.51	.48	.43	.40	.36
56 "	.85	.80	.76	.72	.67	.63	.58	.58	.53	.50	.45	.41	.37
58 ''	.88	.83	.79	.74	.69	.65	.60	.60	.55	.51	.46	.42	.38
60 "	.91	.86	.81	.77	.72	.67	.62	.62	.57	.53	.48	.44	.40
62 ''	.94	.89	.84	.79	.74	.69	.64	.64	.58	.55	.49	.45	.41
64 "	.97	.92	.87	.82	77	.72	.66	.66	.60	.57	.51	.47	.42
66 ''	1.00	.95	.90	.84	.79	.74	.69	.68	.62	.58	.53	.48	.44
72	1.09	1.03	.98	.92	.86	.80	.75	.74	.68	.64	.57	.53	.47
74 ''	1.12	1.06	1.00	.94	.89	.83	.77	.76	.70	.65	.59	.54	.49
76 "	1.15	1.09	1.03	.97	.91	.85	.79	.78	.72	.67	.61	.56	.50
80 ''	1.21	1.15	1.08	1.02	.96	.89	.83	.82	.75	.71	.64	.58	.53
84 "	1.32	1.25	1.18	1.11	1.04	.97	.90	.89	.82	.77	.69	.63	.57
92 "	1.54	1.46	1.38	1.30	1.22	1.14	1.06	1.04	.96	.89	.80	.74	.66
96 ''	1.71	1.62	1.53	1.44	1.35	1.26	1.17	1.15	1.05	.98	.88	.81	.73
108 "	1.93	1.83	1.73	1.63	1.53	1.42	1.32	1.29	1.19	1.11	1.00	.92	.82
120 ''	2.14	2.03	1.92	1.80	1.69	1.58	1.47	1.44	1.32	1.23	1.11	1.05	.95

ENAMELED DUCK.

							Black.	Green.	Brown.
38 ir	nches wide,	per yard		4			\$0.23	\$0.33	\$0.33
45	4.4	- "	٠				.25	.35	.35
50	6.6	4.6	٠				.27	.37	.37
54	6.6	+ 4					.30	.40	.40
60	4.4	4.6			,		.45	.55	,55

MOHAIR PLUSH.

FOR RAILROADS AND CAR BUILDERS.

Samples and prices on application. Furnished in crimson, scarlet, green and old gold, and either low pile, medium pile or high pile, as desired.

Prices per piece of 40 yards, \$45 to \$100, 24 inches wide. Other widths to order, 28, 30

and 36 inch.

CURLED HAIR.

Gray,	No.	. 1 Dra	wings	s, pick	ed,	\$0.45	Black	, Sup. Extra	Dra	wing	gs, ro	pe pi	cked		\$0.50
				rope				A picked							.45
4.4	4X	picked	1 .			.37	6.6	4X "			0			0	.40
h 6	3-0	4.4				.36	6.6	000Λ "							.36
4.1	0	4.4				.33	4.4	1A special							.83

BLACK CURLED TAMPICO.

To tal	ke th	e plac	ee o	f Moss	for	parties	rec	quiring	som	ething	better.			
											0	0	,	\$0.10

MOSS.

Per lb. .

Best	Double Ginned	La.,	XXXX,	per lb.		٠			D	p	\$0.071
6.4	6.6	6.6	XXX,	4.6				ø	0	9	.06}

150 lbs. in a bale.

PINE TAR. Per Barrel	
" Iron Hooped	
In cases, two 5-gal. cans, per case	
In Oil Barrels	
In Barrels, 200 lbs, 220 lbs., 240 lbs Per bbl., \$	
ROSIN. F. Good, No. 2, about 500 lbs. in bbl Per 280 lbs., \$	
ROSIN OIL.	
First Run Per gal., \$	
Second "	
BONE BLACK.	
Small Lumps, Carbouized for Case Hardening, about 230 lbs. to	
bbl	
Powdered	3
In Barrels Per lb., \$0.0	3
In small lots	$3\frac{1}{2}$
In Boxes, 36 lbs Per box, \$	
In $\frac{1}{4}$, $\frac{1}{2}$ and 1 Gross Boxes Per gross, \$	
SAPOLIO. In ½ Gross Boxes \$5.00 In ¼ Gross Boxes \$2.5	:O
BABBITT'S SOAP.	()
"Best," 100 Cakes in a box, weight 75 lbs Per box, \$	
LePACE'S LIQUID GLUE.	
Patent Tin Cans for Mechanics.	
1-Pints, 2 doz. in case Per doz., \$3.	25
Time to the state of the state	50
	50
In Tin Cans for Mechanics and Manufacturers.	
The state of the s	
doz. in case Per doz., \$15.	00
1 Gallon, ½ " " " 27.	00
Fig. 1801.	
PUTZ LIQUID POLISH.	
1-Pint size, per dozen \$2.00 \frac{1}{2}-Pint size, per gross \$22.	00
In Payor nounds 1 1 91	ž
Per lb	5 30
In lots of 50 lbs \$ 100 lbs., \$ 200 lbs., \$ 500 lbs., \$	-0
PUTZ POMADE, "KAISER BRAND."	
In Boxes, pounds	

\$ In 50-lb. Bales.

OAKUM.

"Navy" "U. S. Navy" "Best"

\$ \$

Brands

Per lb. . .

TINNED CLUE POTS.



No		0000	000	00	0	1
Capacity.		1 gill	$\frac{1}{2}$ pint	3 gills	1 pint	$1\frac{1}{2}$ pint
Per dozen		\$4 50	5.00	5.50	6.00	6.75
No		2	3	4	5	6
Capacity, qua	ırt	. 1	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Per dozen		\$8.40	10.26	12.42	14.58	16.94

Fig. 1802.

CLUE BRUSHES.



Fig. 1803.													
Made of gray bristles with iron ferrule pinned to the handle.													
No 6 5 4 3 2 1													
Per doz \$4.25 5.00 5.60 7.20 10.00 11.00													
Assorted 1 to 6, one doz. in a box, per doz., \$7.12.													
GLUE BRUSHES-IRON HANDLES.													
All Bristles, Brass Ferrules.													
No 20 30 40 50 60 70													
Per dozen													
Assorted, 20 to 70, one doz. in a box, per doz., \$7.35.													
GLUE.													
Patternmakers', white, in bbls. about 130 to 150 lbs., per lb													
Carpenters', " 200 " "													
Common, " 275 " "													
PURE CROUND AND BOLTED PUMICE STONE.													
Selected Lump, "P. C," in bbls. about 100 lbs., per lb \$0.12													
" No. 3, " " 100 " "													
Ground and bolted, 1st quality, "F. F," bbls. 150 to 300 lbs., per lb													
LUMP AND CROUND ROTTEN STONE.													
Lump in bbls. about 100 lbs., per lb \$0.10 to \$0.24													
Ground " 225 " "													
" in pkg " 25 "													
TRIPOLI.													
Lump in barrels, per lb													
Ground "													
In ton lots, special price.													
ROUGE.													
Kind													
POLISHING COMPOSITION. The distriction may be \$0.19. White in sticks now be \$0.19.													

Red, in sticks, per lb., \$0.12. White, in sticks, per lb., \$0.12.

	BOR	AX.		
Lump, in bbls., 370 to 380 lbs.			a 4	Per lb., \$
" " cases, 50 or 100 "				"
Powdered, in bbls., 330 "				66
" " 50 or 100 "				66
	CHAI	_K.		
White Lump, in bulk				Per lb., \$0.02\frac{1}{2}
" Carpenters, prepared .				Per gross, \$
Red "				66
Blue "				6.6
Half gross in a box.		25	gross in a	case.
CHA	LK CF	RAYONS.		
White				Per gross, \$
" Empire Brand				66
" Dustless				6.4
e p	IIN CO	TTON.		
•	on co	11014.	37.7	o TT - TT
Brands			XL	6X 3X
Per lb			\$. of 195 lba	\$ \$
Put up in rolls 1	. 10 12 10	s., in baies	บบบาล	•
BUNTING	G, FAS	ST COLO	RS.	
Railway, Red, White, Green and I	Blue .			Per roll, \$
Standard				66
Army				6.6
Navy				6.6
Government				6.6



Size .

Per doz.

BERGER STAR BUCKET EARS.

COLOR.

\$1.35

18x18 18x20

1.40

18x24

1.50

Size, Nos. . 1 2 3 4 5 6 7 Per gross . \$0.35 50 .65 .90 1.30 1.60 2.25

HEAVY STAR EARS.

Fig. 1804. All Star Ears are countersunk for flush Rivet Heads.

VULCABESTON MOULDED UNION WASHERS.

FLACS, ANY

Other sizes to order.

18 thick, 16 thick, Per 100. Per 100. \$1.50 1.75 2.00 $1\frac{7}{16}$ in. $x = \frac{15}{16}$ in. $1\frac{11}{16}$ in. $x = 1\frac{3}{16}$ in. 2.25 2.75 $2\frac{1}{16}$ in. x $1\frac{7}{16}$ in. 66 17 66 4.00 3.25 " 1½ $2\frac{1}{2}$ in. x $1\frac{13}{16}$ in. 5.00 3.75 66 2 $2\frac{7}{8}$ in, x $2\frac{1}{4}$ in. 5.50 4.25 " 21 $3\frac{1}{2}$ in, $\times 2\frac{1}{16}$ in. 8.00 6.75 " 3 4_{16}^{3} in. x $3\frac{1}{4}$ in. Fig. 1805. 10.00 8.00

METALS.

BABBITT METAL.

				BA	BBI	CT M	ETA	L.			
Original Form	ula.	Ou	r own	Make	ө						Per lb \$
	Ba	bbitt	Metal	s of I	Jower	Grad	des F	urnis	shed t	a Ord	ler
			positio								.01,
										LOLUI.	
Strictly Half a	nd F	Talf			301	.DER					Dow 15 d
Half and Half			_		•	•	•		•	9	Per lb., \$
Plumbers' No.	1 B	lock \$	Solder	•		:	•	•	4		4.6
					COI	PPER			•	•	
"Lake" Ingot			•							•	Per lb., \$
Ingot .	•	•	•								66
Large Dies al		40F	17 .	ı	BLOC	K T	IN.				
Large Pigs, al Small "	out	30		•		•		•	•	•	Per lb., \$
" Bars,	66	$\frac{50}{1\frac{1}{2}}$		•	•	•	•		•		66
250115,		12		•	Anti	MON	v	0	٥	۰	• 6
Cookson's											Per lb., \$
Hallet's							•		•	٥	TOI 10., ®
				Ť		AD.	•	•	•	•	
Pigs, about 80	lbs										Per lb., \$
T Total man		_		ANT	IMO	NIAL	LEA	D.			- / "
In Pigs, 70 to	80 1	bs	•								Per lb., \$
In Dames alass	1 50	11	. 1				IETA				
In Boxes, abou	it 56	IDS.	to a b						•		Per 1b., \$0.25
Regular size 36	3781	No	0 14	The S	HEET	chaot	AC.				Day 11- #
100 arat 2120 0	1404	, TAO.	0, 14	INS.,	ber,	впесі	9				Per lb., \$

Other Sizes and Weights to Order.

SOLDERING COPPERS.



Fig. 1806

WITH	SQUA	RE	Pon	NTS	FOR	Сом	MON	Use.						Wii	н Fi	AT F	OINTS FOR BOTTOMS
						HA	CHET	· Co	PPE	RS F	OR	Pro:	MBE:	rs' U	SE.		
Nos.				1	15	2	$2\frac{1}{8}$	3	4	5	6	ry	8	10	12	14	
Weig	ht .			1	$1\frac{\tilde{1}}{2}$	2	$2\frac{1}{2}$	3	$\overline{4}$	5	6	7	8	10	12	14	pounds per pair.
							າກກອ								· lh		

SOLDERING PAN.

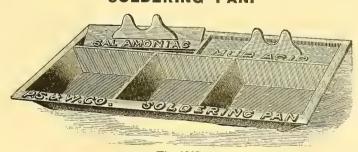


Fig 1807. Cast Iron, Plain.

Soldering Pan for Tinners' Use per dozen, \$9.00

SHEARS.
HAND SHEARS
OR SNIPS,
Fig. 1808. LEFT HAND. No. $6\frac{1}{2}$. Hand, cut $4\frac{1}{2}$ inches, each, \$3.00 No. 9. Hand, cut 3 inches, each, \$1.50
CIRCULAR
HAND SHEARS.
Fig. 1809. No. 7. Circular, Hand, each . \$3.50 No. 9. Crcular, Hand, each . \$2.50 "10. "10. "10. "10. "10. "10. "10. "10
STRAIGHT HANDLE SHEARS.
Fig. 1810. No. 7. Hand, cut 4 inches, each, \$2.50 No. 9. Hand, cut 3 inches, each, \$1.50 $\cdot \cdot
ROOFERS' SHEARS. No. Each.
80. Hand, cut 3½ inches . \$2.00 90. Hand, cut 3
Fig. 1811. $ \begin{array}{c} \text{inches} & 1.50 \\ 100. \text{ Hand, cut } 2\frac{1}{2} \\ \text{inches} & 1.40 \\ \end{array} $
BENCH BENCH
Fig. 1812.
No. 00. Cut 12 inches, each . \$13.50. No. 3. Cut $8\frac{3}{8}$ inches, each . \$6.00 . $10\frac{1}{2}$. 12.00 . 4 . 8 . 6 .



Fig. 1813. See also page 102.

OIL FILLERS OR FEEDERS.

				Per	Dozen,
1 I	Pint, I	Brass o	r Copy	per,	\$12.00
$1\frac{1}{2}$	66	6.6	3.5		14.00
2	66	66	66		16.00
3	66	66	66		20.00
4	66	66	66		24.00
Abo	ove wi	th long	g Spor	uts,	
	Extra				3.00
1]	Pint, Z	line			4.00
$1\frac{1}{2}$	66	6.6			5.00
1	Quart,	Zinc			6.00
1	66	Tin			3.50
2	66	6.6			5.00

TALLOW CANS.

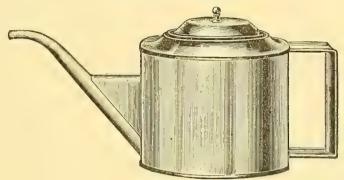


Fig. 1814.

					Pe	r Dozen.	_					Per Dozen.
1	Quart,	Tin				\$9.00	1	Quart,	Brass of	r Copper	,	\$18.00
-3	66	64				12.00	2	66	66	66		. 24.00
;}	66	66				18.00	3	66	66	46		. 30.00
4	66	6.6	with	Bail	٠	24.00	4	6.6	46	46	with Bai	1 42.00

MEASURES.



Fig. 1815.

1 Pint, 1 " 1 Quart,	66	66	e e	Tin. \$0.80 .90 1.20 1.50 3.00	Tinned Inside. \$4.00 5.00 7.00 9.00 12.00		lal.,	/ A	doz. Bail, "		Tin. \$4.50 1.50 2.00 2.50	Copper, Tinned Inside. \$17.00 3.25 4.50 6.00
----------------------	----	----	-----	---	--	--	-------	-----	--------------------	--	--	---

LOCOMOTIVE OILERS.

Figs. 1816 and 1818 are Sectional Views, Showing Inside.

				T75 1	1010	Dom	Dogon
			-		1816.		Dozen.
	1.	Pint,	Brass,	with	Valve		\$36,00
	2	66	66	66	66		48.00
	3	66	66	66	66		60.00
	1	44	6 6	No.	66		24.00
	2	66	66	66	66		36.00
	3	66	66	66	66		48.00
1	1	4.6	Tin,	with	66		24.00
	2	66	66	66	66		33.00
	3	66	66	66	66		45.00
	1	66	66	No.	66	b 0	12.00
	2	66	66	6.6	66		21.00
	3	66	46	6.6	66		33.00
	4	SPOL	ITS FO	OR U	PRICE	IT OIL	ERS.
	١	31-00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,			-
						Tin.	Brass.
	14		ies, per		n.	\$5.00	\$8.00
	24	F 66		66		8.00	10.00
	30) "	6.6	6.6		12.00	14.00
ANT	36	3 "	66	6.6		16.00	18.00
				Fig.	1817.		

Fig. 1816.

WITH DETACHABLE SPOUT.

The flow of oil from this can is easily regulated by the Pneumatic Thumb Valve (D).

					Per	Dozen.
1	Pint,	Tin				\$14.00
2	66"	66		•		16.00
1	66	Brass	٠			20.00
2	66	66				24.00



Fig. 1817.

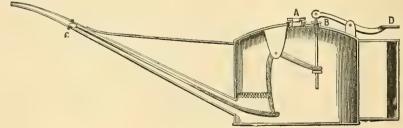


Fig. 1818.

						Pe	r Dozen.	1						Per	Dozen.
1	Pint,	Brass,	with	Valve			\$36.00	1	Pint,	Tin,	with	∇ alve			\$24.00
2	66	65	66	66	۰		48.00	2	6 6	66	6.6	66			33.00
1	66	66	No	66			24.00	1	66	6.6	No	6.6	9		12.00
2	66	6.6	6 6	65	6	9	36.00	2	66	66	66	66		0	21.00
							See also	page	10%.						

RAILROAD URINALS.

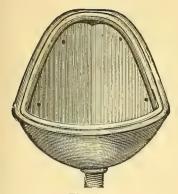


Fig. 1819.

Size 10½x13 inches.

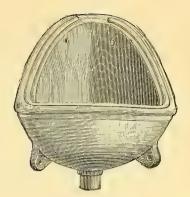
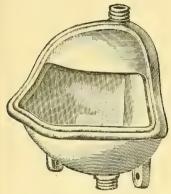


Fig. 1820

Fig.	1819,	No.	1.	High Back,	with Screw	Holes	4 B			Each,	\$4.25
46	1819.	66	1.	6.6	66	66	with Lip			66	4.75
66	1820.	66	1.	66	6 G	66	and Tabs			66	4.75
66	1820.	66	1.	66	66	÷ 6	46	and	Lip	66	5 10



F g. 1821.

Size $10\frac{1}{4}$ x13 inches

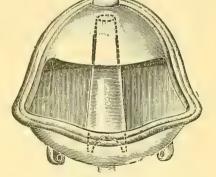


Fig. 1822.

Fig.	. 1821.	No. 1.	High Back,	Screw Tabs,	Hood	Vent and	Lip		Each,	\$7.25
66	1821.	" 1.	66	66	66	wit	hout	$_{ m Lip}$	66	6.25
66	1822.	" 1.	44	66	66	\mathbf{L} ip	and	Ven	t Flue	
			inside, ea	eh .						8.80
Fig.	1822.	No. 1.	High Back,	Screw Tabs,	Hood	Vent, no	\mathbf{Lip}	and	Vent	
			Flue insi	de, each						7.00



Fig. 1823.

Fig. 1823.
Size, 9x9\(\frac{1}{4}\) inches.

Package Extra.

RAILROAD URINALS.

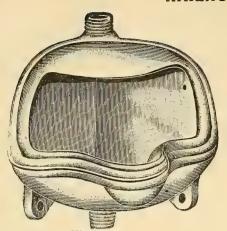


Fig. 1824. Special, 9x11 inch, each, \$7.25.

FLOOR PIPES.

Fig. 1826.

DRIP PANS.

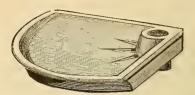


Fig. 1825.

No.	1.	11x11	inches,	each		\$3.75
66	2.	12x12	66			3.75

URINAL PIPES.

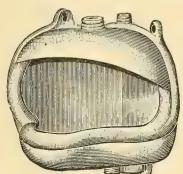


Fig. 1827. BENT PIPE.



Fig. 1828.

			Fig.	1826					
Length, extremes .									. 9 inches
Diameter inside									$3\frac{1}{4}$ "
Diameter outside, top									. 4 ³ / ₄ " . 3 ³ / ₄ "
Diameter outside, bottom	4		•						$3\frac{3}{4}$ "
Price per dozen								•	. \$16.00
		$\mathbf{F}_{\mathbf{i}}$	g. 18	327-18	328.				
Diameter inside									. $1\frac{3}{8}$ inches
Diameter outside, top							•		. 25 "
Diameter outside, under f	lange								. 2 "
Fig. 1827. Urinal Pipes,	16, 1	8 and	l 20 i	inches	slong			. P	er doz., \$24 00
" 1828. "	bent,	16,	18 aı	1d 20	inches	long			66 24.00



BEDFORDSHIRE URINALS.

LIP, HOOD AND VENT.

Fig. 1829.

No.	1.	Corner,	12x12	inch,	each		\$12.00
66	2.	6.6	11x11	6 6	66		10.00

Fig. 1829.

BEDFORDSHIRE URINALS.



Fig. 1830.

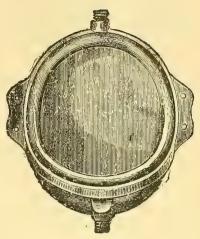


Fig. 1831.

Fig.	1830.	No.	1,	Flat	(Lip, E	food	and	Vent)		15x17 i	$nch \epsilon s$, each,	\$12.00
66	1830.	6.6	2,	6.6	66	66	66	46		13x15	6.6	66	10.00
66	1831.	66	1,	6.6	without	t Lip				15x17.	6.6	66	8.00
ce	1831.	46	2,	66	4.4	46	0			13x15	66	6.6	6.00
66	1831.	46	3,	66	6.6	6.6		•		12x14	66	6.6	5.00
66	1831.	66	1,	6.6	with	60	•			15x17	4.6	. 6	10.00
66	1831.	66	2,	6.6	66	66				13x15	6.6	66	8.00
66	1831.	4.6	3,	4.6	"	66			4	12x14	4.4	66	7.00

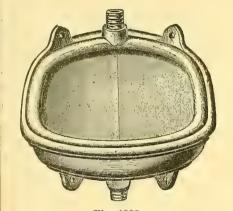


Fig. 1832.

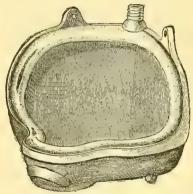


Fig. 1833.

				Corner					0
66	1832.	66	2.	46					
4.6	1832.	66	3.	6.6					
6.6	1833.	66	1.	66	with	Lip			•
6.6	1833.	66	2.	66	66	66			
. 6	1 833.	66	3.	6.6	46	66	•	•	•

Package Extra.

11x11 " " 6.0	00
10x10 " 5.0	00
12x12 " " 10.0	00
11x11 " " 8.0	00
10x10 " " 7.	00

RAILROAD HOPPERS.

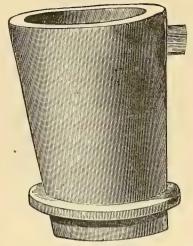




Fig. 1834.	F	IG.	1834.	SP	RINGF	IFLD.			Fig.	1835.
Height from bottom of Flange .										• 16½ inches
Top inside diameter			4	۰						$9\frac{1}{2}$ "
Top outside "										. 12\frac{1}{4} "
Bottom outside, under Flange .										$.7\frac{1}{4} \times 10^{-1}$
Each										. \$8.70
		Fie	a. 1835		Engli	SII.				
Height from bottom of Flange .										$16\frac{3}{4}$ inches
Top outside										$13\frac{5}{8} \times 15\frac{1}{2}$ "
Bottom outside, under Flange .										$8\frac{1}{2} \times 10\frac{3}{4}$ "
Each		•	e 0				•			\$10.00

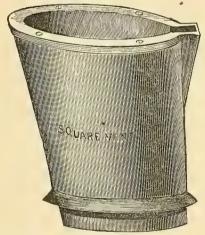




Fig. 1836.		Fig.	1836	6. Сн	UTE.			Fig.	. 18	37.
Height from bottom of Flange										17 inches
Top extremes										$14\frac{1}{4} \times 16\frac{3}{4}$ "
Bottom outside, under Flange					•					$8\frac{1}{4} \times 10\frac{3}{4}$ "
Each		1.002		•				•	•	\$10.80
				ECIAL		TED.				
Height from bottom of Flange										16 inches
Top inside										$9_{\rm X}9_{\frac{3}{4}}$ "
Top outside, not including vent,										12 "
Top over all, including vent .						*				$15\frac{1}{2}$ "
Bottom, outside under Flange, o	liame	ter								$11\frac{1}{4}$
Each										\$10,00
		Pa	ckag	ge Ext	ra.					

530

RAILROAD HOPPERS.

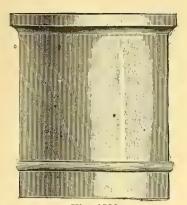


Fig. 1838.

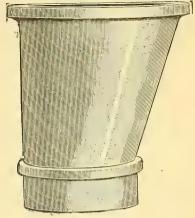


Fig. 1839.

Height from bottom of	Flange
Top outside Bottom outside, below	Flange
Each	
	Fra 1

Fig	. 183	8. (VAL.					
								$14\frac{1}{4}$ inches
								$11\frac{3}{4}$ x 16 ''
								$9\frac{1}{4}$ x $13\frac{1}{2}$ "
				o				\$8.00
$-O\nabla A$	ь То	PANI	Rot	IND E	вотто	М.		
								14 inches
								12x15½ "

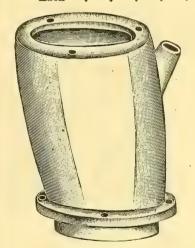


Fig. 1840.

Height from bottom of Flange Top, inside diameter

Top, outside diameter
Bottom, outside, under Flange
Each

Each

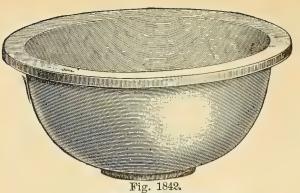


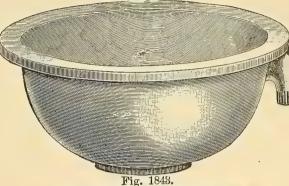
\$8.00

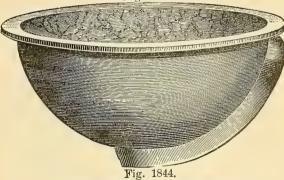
Fig. 1840. Springfield.

r ICI.	10-10.	CA Tell	CLID	ilili),					
									16\forall inches
									$9\frac{1}{4}$ "
									12 "
				-					74x10½ "
									\$8.70
Fig.	1841.	No.	3 "]	3.11					
						a			15 inches
									11 x16 "
									8½x13½ "
									$5\frac{7}{8} \times 9\frac{7}{8}$ "
•	Packs	ge Ex	tra.	٠	٠		٠	٠	\$7.30

Top, inside Bottom, outside, below Flange









ROUND PLUC BASINS.

NO OVERFLOW.

Fig. 1842.

Size, inches,	12	13	14
Price, each, \$	31.00	1.00	1.00
Size, inches,	15		16
Price, each,	\$1.5	0	2.00

COMMON OVERFLOW.

Fig. 1843.

Size, inches,	12	13	14
Price, each,	\$1.00	1.00	1.00
Size, inches,	15		16
Price, each,	\$1.5	0	2.00

PATENT OVERFLOW.

Fig. 1844.

Size, inches,	12	13	14
Price, each,	\$1.25	1.25	1.25
Size, inches,	15		16
Price, each,	\$2.0	0	2.50

PATENT OVERFLOW FOR RUBBER PLUC.

Fig. 1845.

 Size, inches,
 12
 13
 14

 Price, each,
 \$1.50
 1.50
 1.50

 Size, inches,
 15
 16

 Price, each,
 \$2.50
 3.00

Outside diameters are given. Actual outside diameters are $\frac{1}{2}$ inch more than given.

Package extra.

DUDGEON IMPROVED ROLLER TUBE EXPANDER.

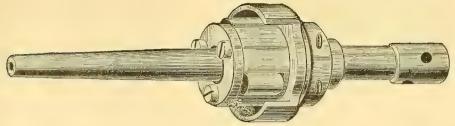


Fig. 1846.

THIS TOOL WILL EXPAND TWO SIZES UP TO TWO INCHES, AND THREE SIZES ABOVE, AS SHOWN ON LIST.

18 and	13 inches		•	۰	\$20.00	$3\frac{1}{2}$,	$3\frac{5}{8}$	and	$3\frac{3}{4}$	inches		 \$70.00
$1\frac{3}{4}$ "]	$\left(\frac{7}{8}\right)$ "				20.00	$3\frac{3}{4}$,	$3\frac{7}{8}$	۷.	4	6.6		 75.00
18 " ;					25.00	4,	$4\frac{1}{8}$	6.6	$4\frac{1}{4}$	6.6		80.00
$2, 2\frac{1}{8}$ a	nd 2 1 "				30.00			66				85.00
$2\frac{1}{4}$, $2\frac{3}{8}$			•		36.00							85.00
$2\frac{1}{2}$, $2\frac{5}{8}$	" $2\frac{3}{4}$ "				39.00		$4\frac{7}{8}$	66	5	6.6		90 00
$2\frac{3}{4}, 2\frac{7}{8}$	3		•		45.00	5,	$5\frac{1}{4}$	66	$5\frac{1}{2}$	66		100.00
$-3, -3\frac{1}{8}$	" $3\frac{1}{4}$ "	٠	•		52.00	$5\frac{1}{2}$,	$5\frac{3}{4}$	46	6	66		105 00
$3\frac{1}{4}$, $3\frac{3}{8}$	" $3\frac{1}{2}$ "	•	•		60.00	6,	$6\frac{1}{4}$	66	$6\frac{1}{2}$	66		115.00

One Expander will answer for any thickness of Tube Sheet.

DUDCEON OLD-STYLE ROLLER TUBE EXPANDER.

THIS TOOL WILL EXPAND ONE SIZE TUBE ONLY, AS SHOWN ON LIST.

1월	inches			\$25.00	3 ¹ / ₄ inches		\$60 00
$1\frac{7}{5}$	4.6			25.00	31/2 "		70 00
2	66			30.00	4 "		. 85.00
21	6.6			35.00	41/2 66		. 100.00
$2\frac{1}{2}$	66			42.00	5 "		120.00
$2\frac{3}{4}$	66			48.00	6 "		130.00
3	66			55.00	17 44		180.00

One Expander will answer for any thickness of Tube Sheet.

These Dimensions refer to the External Diameter of Tube.



ROLLER TUBE EXPANDER.

Fig. 1847.

Diameter, inches		1	11	$\frac{1\frac{1}{2}}{10.00}$	13	17	2	21	91	23
Diameter, inches		7	-4	1.0	-4	8			, No -3	
Duine cook		\$10.00	10.00	10.00	10.00	10.00	10.00	-12.00	14.00	-16.00
Price, each .	6	ФT0.00							1.00	10.00
Diameter, inches		ર	31	$3\frac{1}{3}$	33	4	41	4 1	5	6
Diameter, Inches		()	04			-	-4	~ 2		· ·
Duine cook		\$18.00	20.00	23,00	25.00	-30.00	-35.00	40.00	50.00	60.00
Price, each .		⊕ TO*OO	~0.00	~0.00	10.01	50.00	1919400	10.00	170.00	00.00



Fig. 1848.

SPIRAL TUBE BRUSHES.

Sizes are outside diameter of Tubes.

Whalebone, \$0.75 \ .75 \ .75 \ .80 \ .90 \ 1.00 \ 1.00 \ 1.50 \ 1.75 \ 2.20 \ 2.25 \ 2.50 \ 2.75 \ 3.00 \ 2.25 \ 2.50 \ 2.75 \ 3.00 \ 3.25 \ 3.50 \ Brass Tube Brushes same list as Steel.

TUBE BRUSHES.



Fig. 1849,

FLUE BRUSHES.

In ordering give exact inside diameter of Flues.

STEEL WIRE, WHALEBONE AND RATTAN.

Steel Wire,	per inch	di	amete	r			\$0.75
Whalebone	- 66		66				.65
Rattan	6.6						.30

Fig. 1850.

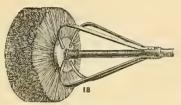


Fig. 1851.

STEEL WIRE FLUE BRUSHES.

In ordering give exact inside diameter of Flues.

Made only 6 in. diameter and upwards.

Price, per inch, diameter . . . \$0.75

FAVORITE STEAM FLUE BLOWER.



Fig. 1852.

CUT SHOWING BLOWER FOR HORIZONTAL FLUES.

This Blower is also made for Vertical Boilers.

No. of Blower.	Size of Tubes Outside Diameter.	Price with Clamps and Nipple.	Best 4-Ply Steam Hose per Foot.	Best Glo Valves.	
No. 0	$1\frac{1}{4}$ in, to $1\frac{3}{4}$ in,	\$5.00	$\frac{1}{2}$ in. \$0.51	½ in. \$1.	60
" 1	2 '' to 2\frac{1}{4} ''	5.00	$\frac{1}{2}$ ".51	$\frac{1}{2}$ " 1.	60
" 2	$2\frac{1}{2}$ " to $2\frac{3}{4}$ "	6 25	$\frac{3}{4}$ ".67	$\frac{3}{4}$ " 2.1	20
" 3	3 " to 3¼ "	7.50	1 " .83	1 " 2.	80
" 4	$3\frac{1}{2}$ " to $3\frac{3}{4}$ "	8.75	1 " .83	1 " 2.	80
" 5	4 " to $4\frac{1}{2}$ "	10.00	$1\frac{1}{4}$ " 1.04	$1\frac{1}{4}$ " 4.	00
" 6	5 " to 6" "	12.50	$1\frac{1}{4}$ " 1.04	$1\frac{1}{4}$ " 4.	00

FLUE OR TUBE SCRAPERS.







Fig. 1854.

Size, inch, $1\frac{1}{2}$ $1\frac{3}{4}$ 2 $2\frac{1}{4}$ $2\frac{1}{2}$ $2\frac{3}{4}$ 3 $3\frac{1}{4}$ $3\frac{1}{2}$ $3\frac{3}{4}$ 4 $4\frac{1}{2}$ 5 6 Price, each, \$2.00 2.00 2.00 2.25 2.50 2.75 3.00 3.25 3.50 3.75 4.00 5.00 6.25 7.50 Scrapers are made to fit Boiler Tubes having outside diameter of sizes given

THOMPSON'S PATENT "SOOT SUCKER" BOILER TUBE CLEANER.

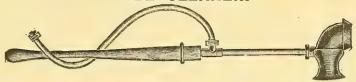


Fig. 1855.

The "Soot Sucker" is an ejector, and the only cleaner perfectly cleaning Boiler Tubes without admitting steam into them, therefore forming no scale.

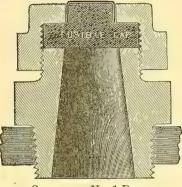
2-inch Tube						\$10.00	4-inch Tube	12.00
2½-inch Tube						10.50	$4\frac{1}{3}$ -inch Tube	12.50
3-inch Tube						11.00	5-inch Tube	13.00
35-inch Tube						11.50	Handle and Fittings	3.50
4-ply Steam H	ose,	3-inc	h, pe	r fo	ot,	.67	4-ply Steam Hose, 1-inch, per foot,	.83

The Cleaner can be placed on the handle and fittings of any of the various blowers, or on a straight piece of pipe, if desired.

BAILEY'S SAFETY "COPPER CAP" FUSIBLE



Fig. 1856.





SECTION OF No. 1 PLUG.

Fig. 1857.

No.	Opening.	Pipe Tap.	Price, each.
0A.	$\frac{1}{2}$ inch	1 inch	\$2.00
1A.	1 46	11/4 44	2.25
2A	5 66	11/4 66	2.50
3A.	3 11	11 "	2.75

FIXED FROM FIRE SIDE.

No.	Opening.	Pipe Tap.	Price, each.
0A.	$\frac{1}{2}$ inch	1 inch	\$2.00
1A.	1 46	11/4	2.25
2A	5 66	11/4 66	2.50
3A.	3 11	11 "	2.75

EXTRA FUSIBLE METAL CAPS.

30 cents each.

\$3.25 per dozen.

	FIXED FROM	WATER SI	DE.
No.	Opening.	Pipe Tap.	Price, each
00	5 inch	3 inch	\$1.25
0	1/2 46	3 44	1.75
1	1 66	1 "	2.25
2	<u>5</u> "	$1\frac{1}{4}$ "	2.50
3	3 4	11/2 "	2.75



Fig. 1859.

EXACT SIZE OF

PATENT FUSIBLE CAP FOR

No. 1 AND No. 1A BAILEY PATENT PLUG

LOCOMOTIVE TORCH. MALLEABLE IRON.

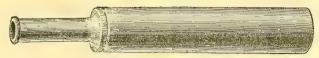


Fig. 1858.

Per dozen, \$5.00

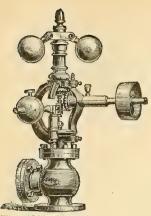


Fig. 1860, Class A.

CARDNER COVERNORS.

Class A, with Automatic Stop arranged so as to close the valve in case of accident to the belt, and is made in all sizes from 1½ to 16 inches inclusive.

Class B is without Automatic Stop and is made in all sizes from $\frac{3}{4}$ to 12 inches inclusive, and furnished with speeder and Sawyer's lever.

In all orders for Governors, be particular to state if Plain or Finished is wanted; the class, A or B, and Style of Valve Chamber. See page 537.



Fig. 1861, Class B. STANDARD.

PRICE LIST OF CLASS "A" AND "B" STANDARD COVERNORS.

Size of Governor-Diameter of Opening,	3/4	1	114	11/2	2	21/4	21/9	3	31/2
Price Class B, Plain	\$16.00	18.00	21.00	25.00	30.00	35.00	40.00	50.00	60.00
Price Class B, Finished	\$18.00	20.00	24.00	29.00	34.00	40.00	45.00	58.00	69.00
Price Class A, Plain				\$29.50	36.00	42.00	48.00	59.00	71.00
Price Class A, Finished				\$33.50	40.00	47.00	53.00	67.00	80.00
Size of Governor—Diameter of Opening,	4	41/2	5	6	7		, 8	9	10
Price Class B, Plain	\$71.00	83.00	94.0	0 - 122.0	00 150.	00 - 18	5.00	215.00	240.00
Price Class B, Finished	\$81.00	94.00	106.0	00 136.0	00 166.	00 - 20	2.00	235.00	260.00
Price Class A, Plain	\$83.00	96.00	109.0	0 140 (00 170.	00 21	0.00	241.00	270.00
Price Class A, Finished	\$93.00	107.00	121.0	0 154.0	00 186.	00 22	7.00	261.00	290.00

TABLE OF DIMENSIONS OF CLASS "A" AND "B" STANDARD COVERNORS.

Size of Governor	- Diamete	r of	Opening,		3/4		1	114	11/2	2	21/4	21/2	3
Diameter of Ba	se Flange	Э .			Scr'	d S	er'd	Ser'd	5충	7	7	8	9
Diameter of Si	de Flange		0 0 0		Scr'	d S	cr'd	Ser'd	Ser	d Ser	'd 7	7	8
Largest Radius	s of Balls				4		4	5	5	6	6	$6\frac{1}{5}$	75
From Centre to	Side Fla	nge		,	2-		$2\frac{1}{2}$	3	33	5	5	$5\frac{1}{3}$	6
From Base to	Centre of	Inlet			2-	<u>i</u>	$2\frac{5}{2}$	3	4	5	$5\frac{1}{3}$	$5\frac{3}{4}$	6
Extreme Heigh					15		15	20	21	25	26	28	32
From Centre to		Shaft			9		9	11	11	13	13	15	15
Diameter of P	ılley .	0 0			2		2	3	3	5	5	5	54
Width of Belt					1-		$1\frac{1}{4}$	1호	1		2	2	2
Number of Re	volutions				300	· [300	250°	250	200	200	200	170
Diam. Cylinde:			on Spec	ed,	4		5	6	7	9	10	12	14
"	400	66	6.0		3		4	5	6		9	10	12
64 66	500	6.6	66				$3\frac{1}{2}$	$4\frac{1}{2}$	5		8	9	10
66 66	600	44	-66					4	4	$\frac{1}{2}$ 6	7	8	9
Size of Governor-	_Diameter	of Op	ening,		31/2	4	41/6	5	6	7	8	9	10
Diameter of Ba	ase Flang	е.			9	10	10	12	14	15	17	18	19
Diameter of Si	de Flange				9	10	10	11	13	14	15	16	17
Largest Radius	s of Balls				71	$8\frac{1}{2}$	83	10	11	12	12	15	15
From Centre to	Side Fla	nge			$6\frac{5}{5}$	$6\frac{1}{5}$	7	71	83	9	10	11	14
From Base to					$6\frac{1}{2}$	$6\frac{1}{2}$	17	8	$8\frac{1}{2}$	$9\frac{1}{5}$	101	11	15
Extreme Heigh					34	37	38	43	44	51	53	62	67
From Centre to		Shaft			17	17	17	21	21	25	25	28	28
Diameter of Pt	ılley .				5_2^1	6	6	7	7	10	11	12	12
Width of Belt					2	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	3	3	3	3
Number of Rev					170	160	160	150	150	130	130	130	115
Diam. Cylinder	300 ft. I	Pistor	Speed		16	18	20	22	26	31	36	40	45
66 66	400	66	6.6		14	16	18	20	23	27	31	35	39
er ee	500	66	6.6		12	14	16	18	21	24	28	31	35
66 66	600	6.6	6.6		11	13	15	16	19	22	25	28	32

Prices of PICKERING, WATERS AND JUDSON GOVERNORS, same List as CARDNER.

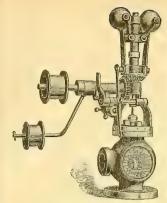


Fig. 1862. Class A—Spring.

With Speeder, Hand Lever and Automatic Stop.

CARDNER COVERNORS.

CLASS A

Shows the Spring Governor with Automatic Stop. This also has speeder and hand lever.

CLASS B

Represents Spring Governor without Automatic Stop, but furnished with speeder and hand lever on all sizes.

When Stop Valves are ordered with Governors, Angle Valves will in all cases be sent unless Globe Valves are specified. In ordering, state style of Valve Chamber. See foot of this page.

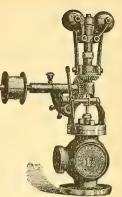


Fig. 1863. CLASS B—Spring.

With Speeder and Hand Lever.

PRIOE LIST OF CLASS "A" AND "B" SPRING GOVERNORS,

Size of Governor-											
Diam. of Opening.	1 2	1	$1\frac{1}{4}$ $1\frac{1}{5}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3	31	4	41	5
Diam. of Opening. Price, Cl. B—Plain	\$14.00 16.	00.18.00	$21.00\ 25.0$	0.000	35.00	40.00	50.00	60.00	71.00	83,00	94.00
Price, Cl. B—Fin.	\$16.00 18.	$00\ 20\ 00\ 3$	$24.00\ 29.0$	0.34.00	40.00	45.00	58.00	69.00	81.00	94.00	106.00
Price, Cl. A-Plain		. \$21.00	24.50 29.5	0 36.00	42.00	48.00	59.00	71.00	83.00	96.00	109.00
Price, Cl. A—Fin.		. \$23.00	$27.50\ 33.5$	0 40.00	47.00	53.00	67.00	80.00	93.00	107.00	121.00

TABLE OF DIMENSIONS OF CLASS "A" AND "B" SPRING GOVERNORS.

Size of Governor,		1/2	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	21	3	31	. 4	$4\frac{1}{5}$	5
Diam. of Base Flange		Sc'd	Sc'd	Se'd	_	$5\frac{1}{3}$	17	7	8	9	9	10	10	12
Diam. of Side Flange, .		Sc'd	Sc'd	Se'd	Sc'd	Sc'd	Sc'd	7	7	8	9	10	10	11
Height—Inches,		12	13	$13\frac{1}{2}$	$17\frac{1}{2}$	22	23	24	27	29	30	35	36	37
Radius of Balls,		$2\frac{1}{2}$	$2\frac{1}{2}$	$2^{rac{1}{2}}$	$3\frac{5}{2}$	4	4	4	5	5	5	$5\frac{1}{5}$	6	6
Length of Shaft,		8	8	8	11	11	13	13	15	15	15	16	16	18
Diameter of Pulley, .		$1\frac{1}{2}$	14	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{5}$	34	$3\frac{1}{2}$	34	$4\frac{1}{2}$	$4\frac{1}{5}$	4.5
Width of Belt,	0	1	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{7}{5}$	2~	2~	2	$2\overline{\S}$	$2\frac{1}{2}$	$2\frac{7}{3}$
Centre to Side of Chamber,	0	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	5	5	$-5\frac{1}{5}$	6	$6\frac{1}{5}$	$6\frac{5}{4}$	7	71
Base to Centre of Chamber,		$1\frac{3}{4}$	$2\frac{1}{4}$	$2^{rac{7}{2}}$	3	4	5	$5\frac{1}{2}$	$5\frac{1}{2}$	6	$6\frac{7}{5}$	$-6\frac{7}{5}$	7	8
Number of Revolutions, .		600	600	$60\bar{0}$	450	400	400	$40\tilde{0}$	$35\tilde{0}$	350	$35\tilde{0}$	$27\overline{5}$	275	275

Note.—The following cuts show the various styles of

VALVE CHAMBERS.

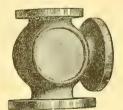


Fig. 1864

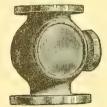


Fig. 1865.



Fig. 1866.



Fig. 1867.

SPRING GOVERNORS.

Spring Governors were designed especially for high-speed stationary and portable engines. They are very quick and sensitive in action. In construction they are fully up to the best modern practice in every particular, and are made in sizes from \(\frac{1}{2} \) to 7 inches inclusive.



Fig. 1868

CARDNER IMPROVED CLOBE AND ANGLE STOP OR THROTTLE VALVE.

They give full area of openings, have heavy Iron Bodies, are fitted with non-revolving Stems, and Phosphor-Bronze Valves and Seats.

PRICE LIST AND TABLE OF DIMENSIONS.

Size—Inches	$1\frac{1}{2}$ \$8.00 \$1.50	2 9.75 1.75 6	$ \begin{array}{c} 2\frac{1}{4} \\ 11.50 \\ 1.75 \\ 7 \end{array} $	$\begin{array}{c} 2\frac{1}{2} \\ 12.50 \\ 2.00 \\ 7 \end{array}$	3 18.00 2.50 8	$ \begin{array}{r} 3\frac{1}{2} \\ 22.00 \\ 2.50 \\ 9 \end{array} $	4 25.00 3.50 10
Size Inches	$4\frac{1}{2}$ \$32.00 \$3.50 10	5 38.00 4.50 11	6 50.00 4.50 13	7 80.00 6.00 14	8 103.00 6. 00 15	9 140.00 8.00 16	10 180.00 8.00 17

ENGINES MOUNTED ON PORTABLE BOILERS.

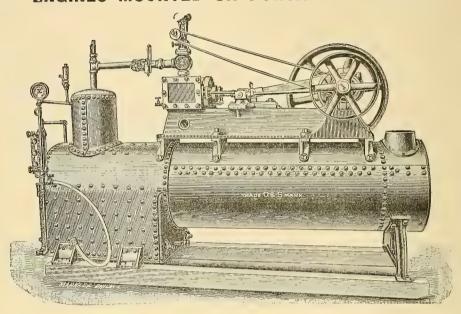


Fig. 1869.

For full particulars of Engine, see page 539. For full particulars of Boiler, see page 553.

TABLE OF DIMENSIONS AND PRICE LIST.

Horse-power as usually rated		10	15	20	25	35
Size of Engine Cylinder, inches .		7x10	8x10	9x12	10x12	11x13
Diameter of Boiler, inches		32	32	34	36	40
Length of Furnace, inches		38	- 44	52	52	52
Height of Furnace, inches		33	33	36	38	42
Width of Furnace, inches		26	26	28	30	34
Number of 3-inch Tubes		26	26	28	34	40
Length of Tubes, inches		72	78	90	96	102
Diameter of Smoke Stack, inches,		16	16	18	18	20
Length of Smoke Stack, feet		18	20	25	25	25
Shipping Weight, Pounds		5900	6800	8000	9200.	11,000
Price, Complete		\$580.00	665.00	790.00	900.00	1050.00

We will furnish these outfits with Pump and Heater or Injector for feeding boiler as desired.

IMPROVED HORIZONTAL ENGINES.

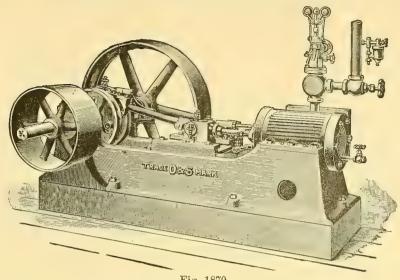


Fig. 1870.

This Engine is especially adapted for duty where two belts are desired. Band Fly-Wheel being turned with crown face.

Pump and Heater can be attached to the 10, 15, 20 and 25 Horse-Power of this pattern when so desired.

Horse-Power as usually) 10	4 =	20	O.W.				
rated,		15	20	25	35	50	60	75
Size of Cylinder, inches.		8×10	9 x 12	10 x 12	11 x 13	12 x 15	13 x 16	14 x 18
Revolutions per minute.	190	190	160	160	160	150	150	150
Size of Steam-Pipe,	11/3	2	2	$2\frac{1}{2}$	21	3	3	9.1
inches	§ 12	~	~	~2	~2	υ	9	$3\frac{1}{2}$
Size of Exhaust-Pipe,	2	$\frac{21}{2}$	$2\frac{1}{2}$	3	3	31	3 ⁷	4
inches)					-	_	
Size of Pulley, inches		-20×10	20 x 10	24 x 12	24×12	30 x 14	30×14	36×16
Size of Fly-Wh'l, inches		40 x 8	44×9	44 x 9	48 x 10	52 x 11	60 x 14	72 x 16
Diam, of Shaft, inches.		215	31/1	33	33	$\frac{4^{3}}{4}$	43	$5\frac{3}{4}$
Leng h of Shaft, inches.	51	51	57	59 11	64	69	73 10	84
Length of Journals, inch.	٠	10	$10\frac{1}{2}$	11	11	12	12	13
Width and Length of Bed-Plate, inches	21 x 69	24×76	26×78	28×91	28×91	30×102	30×102	34×116
Weight of Engine								
complete, pounds .	1700	2300	2900	3400	4300	5800	7000	9500
Price of Bare Eng. with-					-010 00			
out Pulley or FWh'l		\$185.55	\$251.55	\$288.20	\$349.20	#431.55	\$501.55	\$599.00
Price of Pulley,	6.20	7.10	7.10	10.70	10.70	13.00	13.00	21,00
Price of Fly-Wheel, .	22.00	32.00	36.00	36.00	45.00	55.00	75.00	100,00
Price of Oil-Cups (four).	2.00	2.25	2.25	2.25	2.25	2.75	2.75	3.50
Price of Sight-Feed	3.50	3,50	3.50	4.25	4.25	5.50	5.50	5,50
Lubricator,	5 0.30	5.50	5.50	30.20	T.~0	0.00	0.00	9,50
Price of Angle Valve	1.75	2.60	2.60	3.60	3.60	5.20	5.20	6.00
and Nipples,	3							
Price of Governor,	23.00	27.00	27.00	35.00	35.00	47.00	47.00	65.00
Price of complete En-								
gine with Trimmings	\$230.00	\$260.00	\$330.00	\$380.00	\$450.00	\$550.00	\$650.00	\$800.00
Price of crating for exp'r	t. 6.00	6.50	7.00	8.00	8.00	10.00	10.00	14.00
Price of Pump and Heate		22.00	26.00	26.00	26.00			
Foundation Bolts and	4.50	5.00	5.50	6.00	6.00	8.00	8.00	
Washers,	£.00	0.00	5.50	0.00	0.00	0,00	0.00	11.00

HORIZONTAL ENGINE.

For isolated electric light plants, saw-mills or mill work of any description.

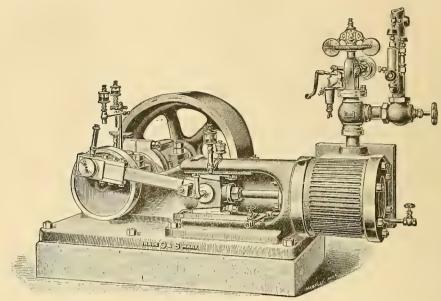


Fig. 1871.

This design is so strong that it can be adapted to very high speed, heavy duty and continuous operation. Equipped with extra heavy balance wheel, automatic stop governor and automatic oiling devices, it will run as steadily and as smoothly as any automatic engine, yet owing to its simplicity does not require the attention of an experienced engineer.

Horse-power (Based on tabulated speed and	10	25	50	75
Size of Cylinder, inches	6 x 6	8 x 8	10 x 10	12 x 12
Diameter of Steam-Pipe, inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Diameter of Exhaust-Pipe, inches	2	$2\frac{1}{3}$	3	$3\frac{1}{2}$
Revolutions per minute,	350	300	265	235
Diam. and Face of Fly-Wheel, inches	24 x 8	32 x 11	40 x 13	48 x 16
Weight of Fly Wheel, pounds	350	800	1300	1900
Diameter of Crank-Shaft, inches	$2\frac{15}{16}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{3}{4}$
Diameter of Crank-Pin, inches	$\tilde{2}$	$2\frac{13}{16}$	$3\frac{1}{8}$	$3\frac{1}{2}$
Diameter of Piston-Rod, inches	1_{76}^{3}	$1_{\frac{7}{16}}$	$1\frac{1}{16}$	2^{-}
Floor Space occupied by Base, inches .	30×40	36×50	40×62	44 x 74
Weight of complete Engine, lbs	1800	3000	4400	6700
Price of Bare Engine without Fly-Wheel	\$ 158.00	\$240.00	\$362.00	\$497.00
Price of Fly-Wheel	22.00	50.00	80.00	120 00
Price of Wiping Oil-Cups	11.00	11.00	11.00	11.00
Price of Sight-Feed Lubricator	4.00	4.00	4.50	5.50
Price of Angle Valves and Nipples	1.75	2.60	3.60	5.20
Price of Automatic Stop-Governor	28.25	37.40	48.90	61.30
Price of Engine and Trimmings	\$225,00	\$345.00	\$510.00	\$700.00
Price of Crating for Export	4.50	5.50	7.00	10.00
Price of Foundation Bolts and Washers	5.00	6.00	8.00	11.00
2 1100 G1 T ANTONIAN TOTAL MILE IN MILITIES	0.00	0.00	0.00	11.00

SELF-CONTAINED DISC-CRANK HORIZONTAL ENGINES.

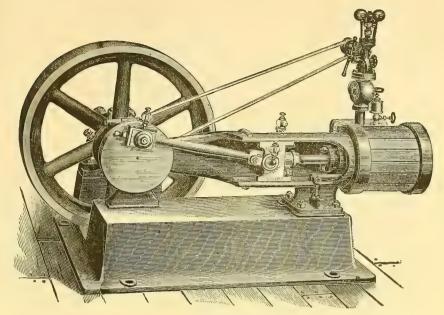


Fig. 1872.

This Engine is suitable for all kinds of work where high speed and smooth running are required. The Engine being all complete on a single cast-iron base, prevents any of its working parts from becoming deranged or out of line. The material is of the best that can be obtained, and the workmanship excelled by none.

Horse-Power as usually rated .	5	7	10	14	20
Size of Cylinder, inches	5x5	6x6	7x7	8x8	9x9
Revolutions per minute	250	200	190	180	160
Size of Steam-Pipe, inches .	<u>3</u>	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Diameter of Shaft, inches	$1\frac{1}{16}$	115	$2\frac{5}{8}$	$2\frac{1}{1}\frac{3}{6}$	$2^{1.5}_{1.6}$
Diameter of Fly-Wheel, inches .	20	24	32	36	42
Face of Fly-Wheel, inches .	5	6	7	8	9
Floor Space required, inches .	29x34	31x38	41x46	46x52	48x57
Weight of Engine, pounds .	600	900	1300	1800	2400
Price of Bare Engine	\$114.30	143.50	183.50	248.50	311.50
Price of Oil Cups (four)	1.70	2.00	2.00	2.25	2.25
Price of Sight-Feed Lubricator	3.00	3.50	3.50	4.25	4.25
Price of Governor	17.00	19.00	21.00	23.00	27.00
Price of Engine with Trimmings	136.00	168.00	210.00	278.00	345.00
Price of Crating for export .	3.50	4.00	4.50	5.00	5.50
Price of Foundation Bolts and					
Washers	3.25	3.7 5	4.50	5.00	5.50

DISC-CRANK VERTICAL ENGINES.

This style of Engine is the most desirable form for general purposes where small powers are required. They are very strong, heavy in construction, but well proportioned, and will stand hard work and high speed.

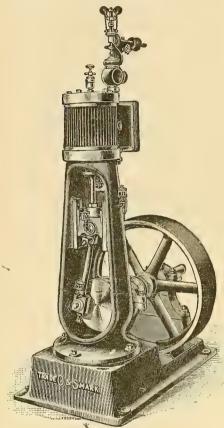


Fig. 1873.

A critical steam test of every engine is made before it leaves the factory, and the necessary adjustments carefully made, so that the Engine is ready to run the moment it is placed in position and given steam.

Horse-power as usually rated		$1\frac{1}{2}$	3
Size of Cylinder, inches .		3×3	4 x 4
Revolutions per minute .		300	250
Size of Steam-Pipe, inches .		$\frac{1}{2}$	3 4
Diameter of Exhaust-Pipe, inche	s	$\frac{3}{4}$	i
Diameter of Shaft, inches .		13	1.7
Diameter of Fly-Wheel, inches		12	16
Face of Fly-Wheel, inches		3	4
Ht. from Floor to Centre of Shaft	, iı	ns. 9	10
		FT. IN.	FT.
Height to Top of Cylinder .		2 - 6	3
Floor Space occupied, inches		13×23	15×28
Weight of Engine, pounds .		225	350
Price of Bare Engine	o	\$52.50	\$87.30
Price of Oil-Cups (four) .		1.40	1.70
Price of Sight-Feed Lubricator		2.60	3.00
Price of Governor		16.00	17.00
	-		
Price of Engine, complete .		\$72.50	109.00
Price of Crating for Export .	9	2.50	3.00
Price of Foundation Bolts & Was	she	rs 2.00	2.50

, 0								
Horse-Power as usually rated	. 5	7	10	14	20	25	35	60
Size of Cylinder, inches .	5×5	6 x 6	7×7	8×8	9×9	10×10	12×12	14 x 16
D. and look! The second of the second	. 250	200	190	180	160	160	160	140
Size of Steam-Pipe, inches .	3 4	1	$1\frac{1}{4}$	11	2	$2\frac{1}{2}$	3	31
Diameter of Exhaust-Pipe, inches	1 1	$1\frac{1}{4}$	$1\frac{1}{2}$	\tilde{z}	$2\frac{1}{2}$	3	31	4
Diamarkan of Chaft in I	111	$1\frac{15}{16}$	$2\frac{5}{8}$	$2\frac{13}{16}$	$2\frac{15}{16}$	$3\frac{1}{4}$	33	$5\frac{3}{4}$
Diameter of Fly-Wheel, inches	$\frac{1}{20}^{16}$	24^{16}	32	36	42	44	$\frac{3\frac{1}{2}}{3\frac{3}{4}}$ 48	$5\overset{4}{4}$
Face of Fly-Wheel, inches .	. 5	6	7	8	9	10	12	16
Ht. from Floor to Centre of Shaft, i		14	18	20	24	26	28	33
110. 110m 11001 to Centre of Shart, 1	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT.	FT. IN.	FT, IN.
Height to Top of Cylinder	3 7	4 5	5 1	5 8	6 6	7	7 8	9 5
Floor Space occupied, inches,	18 x 36	22×40	25 x 46		30×56	36 x 62		
Weight of Engine, pounds,	600	900	1300	1800	2400	3200	4400	7000
Price of Bare Engine	\$114.30	143.50	183.50		311.50	399.50	525.00	767.00
Price of Oil-Cups (four)	1.70		2.00		2.25	2.25	2.50	2.50
Price of Sight-Feed Lubricator,	3.00					4.25	5.50	5.50
Price of Governor	\$17.00	19.00	21.00		27.00	35.00	47.00	65.00
Title of dovernor	Ф11.00	10.00	21.00	20.00	21.00	90.00	71.00	00.00
Price of Engine, complete	\$136.00	168.00	210.00	278.00	345.00	441.00	580.00	840.00
	\$3.50	4.00	4.50	5.00	5.50	6.00	8.00	12.00
Price of Foundation Bolts & Wash	ers \$3.00	3.50	4.00	4.50	5.00	6.00	8.00	10.00
The shove style Engines are m		o Cranl	r in cire	5 7 1	0 14 an	d 20 hor		

CLASS A COMBINED VERTICAL ENGINE AND BOILER.

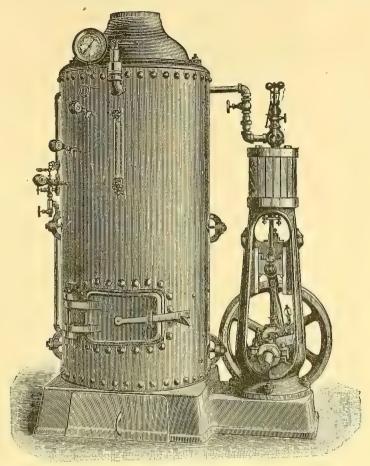


Fig. 1874.

As will be noticed, the Engine and Boiler bases are cast together, and the combined weight of the Boiler and the water therein contained is sufficient to hold Engine rigidly to its place while performing its service up to the given capacity. This renders foundation bolts for the Engine unnecessary.

TABLE OF DIMENSIONS AND PRICE LIST.

Horse-Power as usually rated	Ŧ			5	7	10	14
Size of Cylinder, inches		•	•	5x5	6x6	7x7	8x8
Size of Boiler, inches .		•		24x72	30x72	30x84	36x84
Ma Q inch Tubon	•	,		24	42	42	60
Length of Tubes, inches	•			49	46	58	58
				Ft. In.	Ft. In.	Ft. In.	Ft. In.
Height from floor to top of B	oiler		•	6 8	6 10	7 10	7 11
Floor space required, inches				28x44	33x50	33x60	38x72
Shipping weight, pounds				1950	2700	3350	4300
Price complete as shown				\$270.00	330.00	390.00	500.00
Price of Crating for export			•	4.50	5.00	6.00	8 00

Price includes Inspirator, Engine and Boiler Trimmings, and pipe connections complete ready for use as shown.

CLASS B COMBINED VERTICAL ENGINE AND BOILER.

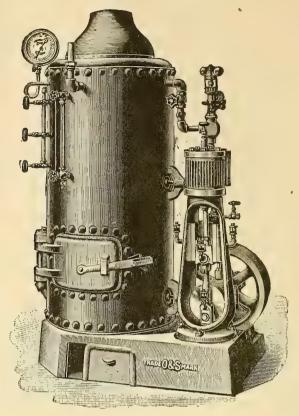


Fig. 1875.

We would call attention to the fact that, with all our combined outfits, we furnish a Boiler with a larger capacity than the Engine. By this means constant attention to the Boiler, when working the Engine to its full capacity, is not so necessary.

TABLE OF DIMENSIONS AND PRICE LIST.

Horse-Power as usually rated	$1\frac{1}{2}$	3	5	7	10
Size of Cylinder, inches	3x3	4x4	5x5	6 x 6	7x7
Size of Boiler, inches	20x36	24x48	27x60	30x72	36x72
Number of 2-inch Tubes	16	24	30	42	60
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
Height from Floor to Top of Boiler	4 2	4 8	6 9	6 10	6 10
Floor Space required, inches	22x33	27x40	31 x 43	36 x5 5	42x66
Shipping Weight, pounds	650	1,600	2,100	2,900	3,600
Price complete as shown	\$135,00	\$215.00	\$276.00	\$336.00	\$450.00
Price of Crating for Export	\$3.50	\$4.00	\$4.50	\$5.00	\$6.00

PRICE INCLUDES INSPIRATOR, ENGINE AND BOILER TRIMMINGS AND PIPE CONNECTIONS COMPLETE READY FOR USE AS SHOWN.

We have patterns to combine any of the above Engines with larger Boilers if desired.

SINGLE CYLINDER, FRICTION DRUM, HORIZONTAL HOISTING ENGINES.

WITH BOILER AND FIXTURES COMPLETE ON BED-PLATE.

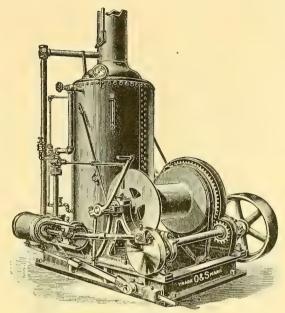


Fig. 1876.

The Gear and Pinion on these Engines are cut from the solid metal.

Specially adapted for pile driving, railroads, contractors, coal yards, docks, ships, quarries and general hoisting purposes.

Size number of Engine .			$1\frac{1}{2}$	2	$3\frac{1}{2}$
Horse-power as usually rated			5	8	12
Size of Cylinder, inches .	٠		5x7	$6\frac{1}{4}x8$	7x10
Diameter of Drum, inches .			10	11	14
Diameter of Flanges, inches		•	22	23	28
Length of Drum, inches .			16	21	26
Diameter of Gear-Wheel, incl	ıes		25	$26\frac{1}{2}$	32 1
Diameter of Pinion, inches.			6	$6\frac{1}{2}$	8
Diameter and face of Band-Wl	neel,	inches	20x5	24x6	28x7
Size of Boiler, inches .			27x60	30x72	36x72
Number 2-inch Tubes .			30	42	60
Floor Space required, inches			35x58	40x66	48x76
Weight of suitable Pile-Driving	g H	ammer	800	1200	2000
Approximate weight, pounds	•		3300	4000	5500
Price complete as shown .			\$500.00	630.00	800.00
Price of Crating for export			11.00	15.00	21.00

DOUBLE CYLINDER, FRICTION DRUM HOISTING ENGINE.

WITH BOILER AND FIXTURES COMPLETE ON ONE BED-PLATE.

The Gear and Pinion on these Engines are cut from the solid metal.

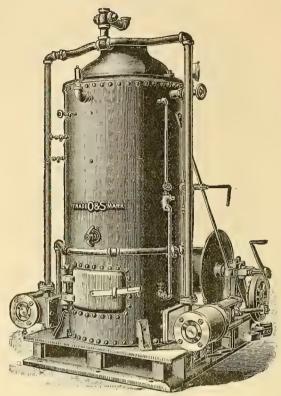


Fig. 1877.

۰			$7\frac{1}{2}$	8	9
			10	15	25
			5x7	$6\frac{1}{4}x8$	7x10
	•		12	14	14
			22	26	30
ges, ind	ches		20	24	32
			25	$26\frac{1}{2}$	$32\frac{1}{2}$
			6	$6\frac{1}{2}$	8
•			30x72	36x84	42x84
			55	60	84
			42x60	48x70	60x81
g Hami	$_{ m mer}$		1500	2000	4000
lbs .			4000	5300	8500
			\$710.00	\$880.00	\$1120.00
0	o		15.00	22.00	29.00
	ges, ind	ges, inches	ges, inches Hammer lbs	30x72 355 30x72 356 30x72 357 30x72 357 30x72 357 30x72 357 30x72 357 30x72 357 30x72 357 30x72 357	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

DOUBLE CYLINDER, DOUBLE FRICTION DRUM HOISTING ENGINES.

WITH BOILER AND FIXTURES COMPLETE ON ONE BED-PLATE.

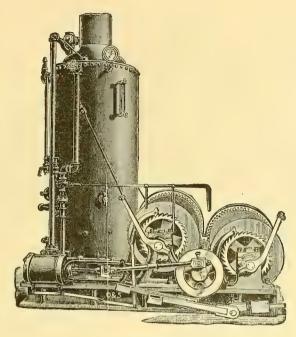


Fig. 1878.

The Gear and Pinion on these Engines are cut from the solid metal.

Especially adapted for Quarry and Bridge work, Building, Mason work, etc.

Size Number of Engine			4		70	$70\frac{1}{4}$	71
Horse Power, as usually rated		•	0		10	15	25
Size of Cylinder, inches					5x7	$6\frac{1}{4}x8$	7x10
Diameter of Drums, inches .	,			a	. 12	14	14
Diameter of Flanges, inches .		•			22	26	27
Length of Drums between Flan	ges,	inche	es	٠	20	24	32
Size of Boiler, inches				٠	30x72	36x84	42584
Number 2-inch Tubes		•	•	q	55	60	84
Floor Space required, inches .					42x78	48x88	60x104
Weight Hoisted, Single Rope, u	ısual	Spee	d, Ib	s.	2000	2500	4000
Approximate Shipping Weight,	lbs .				5500	7000	9000
Price complete as shown			•	۰	\$900.00	\$1100.00	\$1260.00
Price of Crating for Export .			e	4	16.00	24.00	32.00

DOUBLE CYLINDER, FRICTION DRUM, HOISTING ENGINES.

WITH LARGE DRUMS AND SECTIONAL FRAMES.

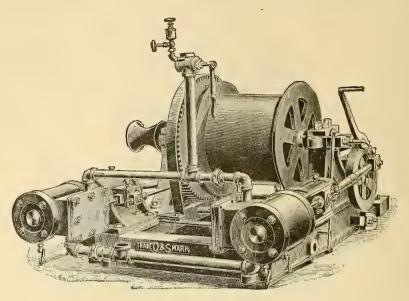


Fig. 1879.

The Gear and Pinion on these Engines are cut from the solid metal.

These Engines will be found especially adapted for moving over the mountains or placing within the mines. The Frames are made in sections, but securely belted together, and all parts are well secured by dowel pins. By this means they can be taken apart and packed in a very small space for prospecting purposes, or can read ly be lowered down a shaft for service on the levels.

612 4 6.373						
Size number of Engine .				$133\frac{1}{2}$	134	135
Horse-power as usually rated	٠			10	15	25
Size of Cylinders, inches .	:		٠	5x7	$6\frac{1}{4}x8$	7x10
Diameter of Drum, inches.			•	16	20	24
Diameter of Flanges, inches				22	29	36
Length of Drum, inches .				. 14	16	20
Floor Space required, inches	•		•	35x48	42x53	51x64
Weight Hoisted, Single Rope,	usual	Spe	ed,			
m pounds				2000	2500	4000
Weight of Heaviest Part, poun				279	457	660
Approximate Shipping weight,	pour	ids.		2000	2300	3000
Price complete as shown .				\$475.00	550.00	650 00
Price of Crating for export				10.00	14.00	18.00

SPECIAL EXTRA HEAVY LINK-MOTION MINING HOISTING ENGINES.

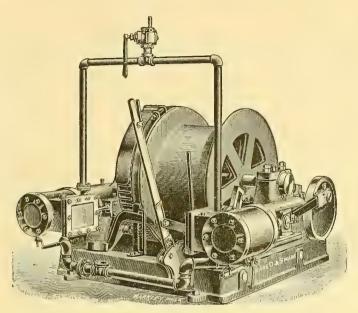


Fig. 1880.

These Engines are designed to stand the severe duty of deep mining. The Gear and Pinion are both half shrouded, the Pinion being made of steel. The shafts are of extra large diameter and the drums of ample size for the capacity of the cylinders.

TABLE OF DIMENSIONS AND PRICE LIST.

Size number of Engine .				148	149	150
Horse-power as usually rated				15	25	40
Size of Cylinder, inches .				$6\frac{1}{4}x8$	7x10	$7\frac{3}{4}$ x10
Diameter of Drum, inches .				28	30	32
Diameter of Flanges, inches				37	41	43
Length of Drum between Flan	iges,	inche	g	20	21	22
Diameter of Crank-Shaft, incl	ies			$2\frac{5}{8}$	$2\frac{15}{16}$	$3\frac{1}{4}$
Diameter of Drum-Shaft, inch	es			$3\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{3}{4}$
Weight Hoisted, Single Rope,	usua	d Spe	ed,			
pounds				2500	4000	6000
Approximate Shipping weight	, pou	nds.		5000	6000	7500
Floor Space occupied, inches			•	58x70	60x74	62x77
Price complete as shown .				\$660.00	740.00	850 00
Price of Crating for export				14.00	18.00	24.00

The Engines can be equipped with "Throwing out Clutch" when so desired, at an extra cost of \$42.00 for any size.

IMPROVED DOUBLE CYLINDER PATENT FRICTION SINGLE DRUM HØISTING ENGINE.

WITH POWERFUL FOOT-BRAKE.

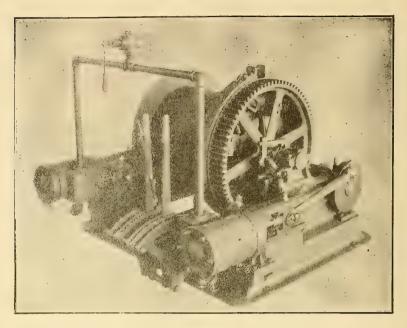


Fig. 1881.

Mounted on solid cast-iron base and fitted with Patent Friction Drum and a powerful Foot-Brake. These Engines have been found by a test of many years to be especially adapted to quarrying and mining operations. They handle heavy loads either on inclined tracks or overhead cables with great speed and are so safe and easily operated that they do not require a skilled engineer. The steam is applied only while hoisting, the lowering being done by the Foot-Brake or the friction. This feature renders the engine economical of steam and adapts them to single compartment shafts, single track inclines and all classes of hoisting where a loose drum is a convenience. The drums are of cast-iron in two sections securely bolted together in the middle. The smaller sizes are turned true, while the larger sizes are spirally grooved for wire rope. The bearings on drum-shaft are long and admit of such thorough lubricating that the drum may revolve on the shaft while lowering with the highest speed and not show appreciable wear.

* *											
Size Number Engine,	51	52	53	54	55	56	57	58	59	60	61
Horse-Power as usually	- 117	16	20	25	30	40	50	60	70	80	100
rated,)											
Diam. of Cylinder,		$6\frac{1}{4}$	7	74	8	9	10	10	11	12	14
Stoke Cylinder,	. 6	8	8	9	10	12	12	15	16	18	18
Diam. of Hoisting Drum,	. 16	18	20	25	29	. 32	42	46	48	54	54
Length of Hoisting Drum	. 22	$25\frac{1}{3}$	$25\frac{1}{5}$	27	28	34	36	40	44	48	48
Diam. of Wire Rope for)		~	~								
which Drums are	- 7°C	5.	.5	1 1 1 6	$\frac{1}{1}\frac{1}{6}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1분	11
grooved, inches)				10	10	-		Ü		.,,	0
Number feet wire rope)											
Drums will hold,	- 164	192	213	257	309	380	452	551	553	603	603
single coil,											
Average Weight Engines 1	1500	2000	3000	3250	3500	4000	4500	5500	6500	7000	9000
Hoist, lbs	11000	2000	9000	0200	9900	4000	4,,000	9900	0000	1000	9000
Average Hoisting Speed,	225	265	275	300	350	375	400	425	450	450	450
feet, per minute	~~~	~00	~ 11)	500	000	919	200	400	400	400	400
Price, Single Drum, Fric-	l œ	\$	@	Q	0	Q.	Ф	@	Ф	Ф	Φ.
tion or Link,		φ	φ	φ	φ	φ	Ф	ф	\$	Ф	φ
Price, Single Drum, with											
Friction and Link,		0 0 0			0 0 0		0				

DOUBLE CYLINDER, DOUBLE FRICTION DRUM AND RE-VERSIBLE LINK-MOTION HOISTING ENGINE.

WITH FOOT BRAKES.

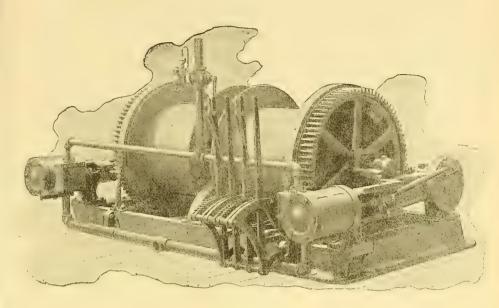
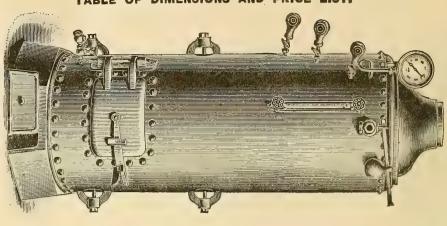


Fig. 1882.

These Engines are especially designed and adapted for Tailrope Haulage and Double Planes. The drums are independent one from the other, loose on the Drum Shaft.

Jo		←Cyli	nder) ===		_Dru		d :	0 : .:		Plate	¬ ⊂Pri	
	wer	Inches.	Inches.	Hoisted Frum at Ibs.	Speeed e, Ft.	les.	ches	n Drum Rope. Inches.	f Rope Holds.	Inches.	Inches.	ctio	Friction ink.
Number Engines.	H-Power,		Inc	H	Sp ute,	Incb	a In					Friction Only.	Frie Link.
Nun Singi	al E	r. in	re in	ight a one time,	ing Min	ü	th ii	ved in Wire neter,	ount of Drum	h in	th in	Sete	olete ind]
Size	Normal	Diam.	Stroke	Weight on one a time	Hoisting Spo	Diam in Inches.	Length in Inches	Grooved for Wire	Amount the Drun Single c	Width	Length	Complete Friction of Link Only.	Complete
			01										
61	32	8	10	3000	350	27	30	7 8	270	140	83	\$	\$
63	5 0	10	12	4500	600	42	38	1	450	167	89		
63	75	12	15	7000	600	48	42	$1\frac{1}{4}$	500	199	103		
64	100	14	18	8000	600	60	60	$1\frac{1}{4}$	900	247	125		

BOILERS. FULL ERTICAL UBULAR LENG OF DIMENSIONS AND PRICE TABLE



are made of a single sheet. brick walls All sizes are well braced by means of stay bolts, and all boilers 30 inches and upwards in

Price of Boiler Complete Price of Stop Cock..... Price of Blow-off Valve..... Price of Gauge Cocks..... Diameter of Stack, inches..... Price Extra for Round Base.... Price of Crating for Export.... Price of Check Valve..... Price of Water Gauge Price of Steam Gauge..... Price of Safety Valve..... Price of Base.... Weight of Boiler with Fixtures, Weight of Boiler without Fix-Number of Tubes (all 2 inches Thickness of Furnace Plate, Thickness of Heads, inches.... Height of Furnace, inches..... Height of Boiler, feet Price of Hood..... Price of Grates..... Price of Bare Boiler.... Length of Tubes, inches..... Thickness of Shell, inches..... Diameter of Furnace, inches.... Diameter of Boiler, inches..... Horse-Power as usually rated... Number of Size..... pounds..... tures, pounds, about. in diameter) 105.00 127.00 \$84.75 103.80 3.50 3.50 1300 2.80 20.05 6.00 10 10 H 223 1.00 1.00 1.50 3.00 900 19 1500 1100 Zo. 3.50 3.50 ≥.80 2.80 7.20 3.00 22 00 1.50 98 154.00 126 00 4.00 1400 4.00 9.50 2000 3.00 3.75 1.50 1.50 5 5 26 35 9 80 193.0. 15.0 153.00 2300 No. 1700 5.00 5.00 4.00 6.28 3.O 46 225.00 264.00 312.00 374.00 402.00 430.00 185.06 212.00 260.00 303.00 331.00 359.00 3100 Zo. 15.00 2500 5.00 6.25 5 00 5.75 3.00 4.00 강 8 16 36 3700 5-16 6,00 9.00 18.50 2800 5-16 9.00 9.00 3.00 PT 90 35 420 1.50 35 36 13.50 4500 6.00 3600 5-16 5-16 3.00 9.00 9.00 9.00 1.50 36 30 26 gg 36 8 2 5 12 00 13.00 24.00 5400 7.00 000F 5-16 16,00 120 2.50 3.00 8.00 30 1.50 32 æ & 60 12.00 16.00 21.00 13.00 5900 7.00 4500 120 72 5-16 3.00 00 2.50 1,50 20 1.50 38 30 9 30 42 .00 12.00 7.00 24.00 5000 16.00 13.00 6400 5-16 120 2.50 1.50 3 00 8.00 90 30 10 13 00 180.00|610.00|680.00 24.00 16.00 109,00 5300 7.00 8.00 7000 5-16 150 90 5-16 38 30 16 50 48 42 10 515.00,585.00 12.00 18.00 6500 1.50 3,00 20.00 34.CO *1652 180 90 11-39 8.00 3.00 88 125 30 38 10 54 20.00 18.00 34.00 7600 1.00 12.00 11-32 180 3.00 1.50 3.00 1,00 1.50 80 s. 73

* + Boilers Nos. 161/2 and 17 have Wrought-iron Hoods, No. 10 Iron. Bases are Flatiron Plates to set on

diameter have their vertical seams double riveted. From No. 1 to No. 10 inclusive, the shells water space around the fire-box is 1½ inches wide, in the 24 inch diameter 2 inches, and in all water leg, and the same number above the crown sheet. Boilers 20 to 30 inches in diameter have two, and the larger sizes three hand holes around the In boilers 20 inches in diameter the

OCTACON BASE Fig. 1883

other sizes 23 inches wide.

PORTABLE BOILERS, LOCOMOTIVE STYLE,

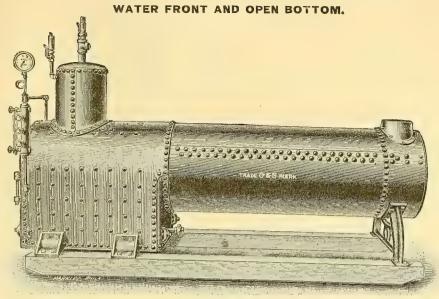


Fig. 1884.

Fixtures and Fittings for above Boilers comprise: Grates, Steam Gauge, Water Gauge, Cauge Cocks, Safety Valve, Blow off Valve, Check and Stop Valve, Smoke Stack and Guy Rods (four times the length of Stack).

Smoke Box is formed by extending shell. It is equipped with Stack Saddle and Smoke

Anything ordered not in the above list of Fittings will be charged as an extra.

Number of Size,	4	5	6	7	8	9	10	12
Horse-Power as usually rated	12	15	20	25	30	35	40	60
Diameter of Boiler, inches .	32	32	34	36	36	40	42	48
Length of Fire Box, inches .	38	44	52	52	52	52	54	64
Height of Fire Box, inches .	33	33	36	38	40	42	46	52
Width of Fire Box, inches .	26	26	28	30	30	34	36	42
Number of 3-inch Tubes,	26	26	28	34	34	40	43	56
Length of Tubes, inches	72	78	90	96	120	102	120	144
Thickness of Shell, inches .	1/4	$\frac{1}{4}$	$\frac{1}{4}$	1/4	1	32	32	5 1 6
Tnickness of Furnace	1/4	1/4	1/4	32	32	32	5 16	5 T 6
Plates, inches 5	4	4	4	32	32	32	16	76
Thickness of Tube Sheets	38	38	200	3,6	3	3 8	3/8	38
and Heads, inches ,	~		-	_	-	-		_
Size of Dome, inches	18×22	18×22	20×24	20×24	20×24	22×26	22×26	26×30
Diameter of Stack, inches .	14	14	16	16	16	20	20	22
Length of Stack, feet	18	20	25	25	25	25	25	35
Weight of Bare Boiler on Skids	3375	3625	4100	4650	4800	5400	6500	9500
Weight of Boiler complete,	4125	4450	5100	5800	6000	6700	8000	11000
with Fixtures, 5								
Price of Bare Boiler on Skids					\$471.00			
Price of Grates,	13.00	17.00	22.00	24.00	24.00	27.00	30.00	36.00
Price of Water Column at-	5.00	5.00	5.50	6.59	6.50	6.50	6.50	6.50
tached with Cocks,					1 50	1 50	1 50	
Price of Water Gauge,	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.57
Price of Steam Gauge,	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Price of Safety Valve,	4.00	4.00	5.50	7.00	7.00	8.00	8.00	10.00
Price of Check and Stop Valve	1.50	1.50	1.50	1.50	2.00	2.50	2.50	3.00
Price of Blow-off Valve,	1.25	2.00	2.00	2.00	2.50	3.00	3.00	3.00
Price of Stack,	15.75	17.00	22.50	22.50	22.50	23.50	25.50	42.00
Price of Boiler complete,	Ф930 00	\$385.00	\$440.00	\$500.00	\$540.00	\$590.00	\$650.00	\$850.00
with Fixtures,	Φ990.00	Ф909.00	\$440.00	\$000.00	\$0.40.00	Фосо.00	Φ090°00	\$000.00
						10.00	12.00	

PORTABLE BOILER (LOCOMOTIVE TYPE).

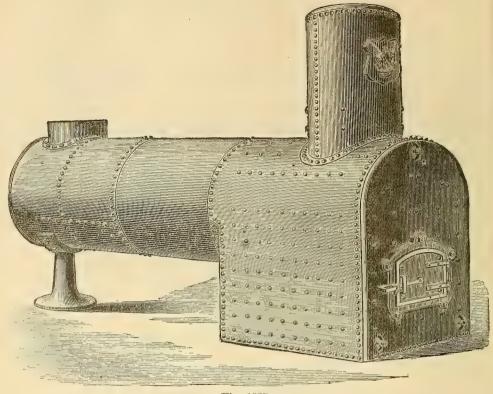


Fig. 1885.

These Boilers are made of the best Steel, with best Flange Steel in the Furnaces. The bottom ring is made of 2 x 3-inch Wrought Iron Bars, giving a three-inch water space on all sides of the fire, and the Boilers are thoroughly braced and stayed. The Furnaces are large size, with ample Grate surface, and the Boilers are first-class in all respects. We put Safety Fusible Plugs in the Crown Sheets. All Boilers are tested thoroughly before shipment. Fixtures for above Boilers comprise Grates, Safety Valve, Gauge Cocks, Steam Gauge, Water Gauge, Water Column, Whistle, Stop Cock, Blow-off Cock, Check Valve, Smoke Stack and Guy Rods.

These Boilers are tested and inspected before shipment, and the purchaser will receive a

Policy of Insurance for one year, issued by a responsible Steam Boiler Inspection and Insurance Company. This Policy will be made payable to the Purchaser, and will be in force and valid wherever the Boiler is located.

SPECIFICATIONS OF PORTABLE BOILERS.

No. of Size	1	2	3	4	5	6	7	8	9	10
Horse-Power as usually rated .	25	30	35	40	50	60	70	80	90	100
Diameter of Boiler, inches .	40	42	44	44	48	54	56	58	58	62
Length of Furnace " .	48	50	50	50	54	60	60	60	60	60
Width of Furnace " .	34	36	38	38	42	48	5 50	52	52	56
Height of Furnace " .	36	40	42	42	48	54	* 56	58	58	60
Number of 3-inch Tubes .	34	40	44	44	54	60	66	76	76	90
Length of Tubes, inches .	96	96	102	120	126	132	144	144	168	168
Diameter of Dome, " .	22	22	24	24	26	28	28	30	30	32
Height of Dome, " .	26	26	28	28	30	34	34	36	36	40
Diameter of Stack, " .	18	20	22	22	24	26	26	28	28	30
Length of Stack, in feet .	24	24	30	36	36	36	40	40	50	50
Wt. of Boiler and Smoke Box, .	6300	6900	7600	8100	9000	11000	12800	14000	15000	16500
Weight of Boiler Fixtures .	1150	1250	1400	1500	1600	1850	2000	2150	2400	2600
Wt. of Boiler & Fixtures, c'mplete	7450	8150	9000	9600	10600	12850	14800	16150	17400	19100

STANDARD HORIZONTAL BOILER WITH HALF-ARCH FRONT SETTING.

These Boilers are built of Flange Steel 60,000 pounds T. S.

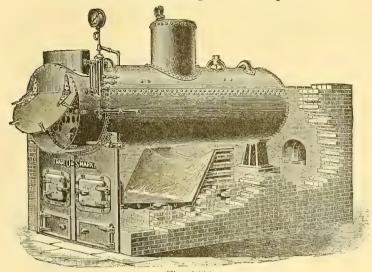


Fig. 1886.

FIXTURES FOR HALF-ARCH FRONT BOILER:

These comprise Front complete, with Liners for Fire Brick, Grates, Grate Bearers, Real Arch Bars, Boiler Stand, Anchor Rods, Rear Ash Door and Frame, Safety Valve, Steam Gauge, Water Gauge fitted with Stand Pipe, three Gauge Cocks with Pipes, Whistle and Pipe, Blow-off Valve, Check and Stop Valves, Britchen, Smoke Stack and Guys (four times the length of Stack). For dimensions and prices see page 556.

STANDARD HORIZONTAL BOILER WITH FULL-ARCH FRONT SETTING.

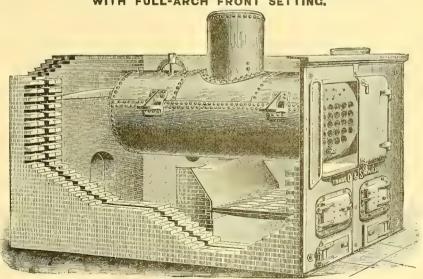


Fig. 1887.—FIXTURES FOR FULL-ARCH FRONT BOILER:

These comprise Front complete, with Liners for Fire Brick, Grates, Grate Bearers. Rear Arch Bars, Rear Ash Door and Frame, two Wall Plates with Rollers, Oval Stack Plate. Binder Bars and Cross Rods, Anchor Rods for Front, Safety Valve, Steam Gauge, Water Gauge fitted with Stand Pipe, three Gauge Cocks with Pipes, Whistle and Pipe, Blow-off Valve, Check and Stop Valves, Smoke Stack and Guys (four times the length of Stack). For dimensions and prices see page 557. The 30 and 36-inch Boilers have only Single Stoking and Ash-Pit Doors.

TABLE OF DIMENSIONS AND PRICE LIST.

HORIZONTAL TUBULAR BOILERS.

HALF-ARCH FRONT SETTING.

	HALF-AR											R	C)	1	FI	RQ	N	Т	S	ΕT	T	I	IC	ì.															
Price of Boiler Complete . Price of Crating for Export	Price of Guy Rods	Of f	Price of Stop-Cock	Price of Check Valve	Price of Glow off Cooks (a) .	tached	Price of Water Column At-	Price of Water Gauge	Price of Steam Gauge	Price of Safety Valve	Price of Boiler Stand	Frame	Price of Rear Ash Door and	Price of Rear Arch Bara	Price of Grate Bearer	Price of Grates	and Liners	with Doors	Price of Britchen	, about	Wt. of Boiler & Half Arch	lbs	Wt. of Boiler and Britchen,	Length of Stack, feet	Diameter of Stack, inches .	Width of Grates, inches	Length of Grates, inches .	Sq. Feet of Heating Surface	Thickness of Heads, inches	Thickness of Dome-Plate, in.	Thickness of Shell, inches .	Height of Dome, inches, .	Diameter of Dome, inches .	Number of Tubes	Diameter of Tubes, inches .	Length of Tubes, feet	Diameter of Shell, inches	Horse-Power as usually rated	Viniber of Size
\$225.00 \$10.00	3.50	2.80	.70	.60	1.00	3.50	7	1.50	3.00	8.15	1.16	3.9 <u>9</u>	0.00	3 : S	1.48	19.79	18.80	1.00	#100.0U 7 39	3100		1600		86	14	30	32	130	00 යා	î-JH	<u> </u>	<u> </u>	18	20	లు	~7	30 0	10	ž
235.00 10 00	3 50	2.80	.70	0.6	1.00	3.50		1.50	3,00	8.15	1.16	3 92	0.00	0.00	1 48	19.79	18.80		140.00	3400		1900		28	14	39 	ಭ	160	 	₽∣⊷⊭	<u> </u>	20	00	20	ಲು :	00	బ ల	13 c	10
275.00 14.00	19.00 3.50							1.50	3,00	4.00	1.16	3.92	0.00	20. E	1.48	15 19	23.08	FYE.O.T	10 49	4300		2600		8%	16	ಜ್ರ	35 35 35 35 35 35 35 35 35 35 35 35 35 3	191	mjer,	ئوسط <u>ا</u> ك	- -	33	20 0	22	ಜ	œ ;	ಶ್	بر 1000 و	110
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400.00	4.50							1.50	3.00	5,25	2.76	3.92	4.40	1.00 1.00	20.00	20.00	98 99	TO*OT	18.84			4100		<u>පූ</u>	20	<u>ئ</u>	411	380	ಶ ಒೈ	이 [©] E	ol ==	39 4-		ည ၁၀	ಬು ¦	10	43	3 SS	5.
465.00 18.00	4.50	5.00	Si	200	06.1	3.50	2	1.50	3.00	5.25 25	2.76	3.92	7.40	1.00	200	27 22	98 90	OT:ET	14 18			4600		င္ဘာ င်း	29 O	44	474	445	ල්යාද්	al_0	داد درد	24	્રું	44	లు !	10	44	3 0 -	5,11
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565.00 19.00	5.00							1.50	3.G	5.25	2.76	3 92	7.30	7 700	2000	27 20	98 90	OT *T.	14.07.40) !	5600		40	20	44	ව ව	560	n[သ ^{ို့}	స్త్రాహ్మ రాజాక్ట్రాహ్మ	5 5 9	25	22	44	లు ¦	4	44	40	570
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HORIZONTAL TUBULAR BOILERS.

FULL-ARCH FRONT SETTING.

1857 172 778 178 78 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5	17,000	24,000	932.16	122.00 55.00 3.20	9.92 3.92 15.02	36.00 30.00 3.00 5	6.30	10.01 1.40 1.40	1.60 6.00 108.00 7.00	1350.00 45.00
1001 001 001 002 000 000 000 000 000 000	14,000	21,000	823.60	$\frac{110.00}{51.00}$	6.12 3.92 13.12	33.00 24.00 3.00	6.30		6.00 96.00 7.00	1200.00
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28 8 4 0 0 0 4 8 8 8 8 8 8 8 8 8 8 8 8 8	4600	8800	316.24	55 82 87.88 1.85	8.92 8.68	21.50 5.35 3.00	3.50	2.30	5.00 32.00 4.50	510.00
2	4100	0064	288.52	55.32 23.00 1.85	4.46 8.93 8.68	21.50 5.25 5.00	3.50	2.30	32.00 4.50	465.00
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20 20 20 20 20 20 20 20 20 20 20 20 20 2	0098	5300	181 35	51.60 15.20 1.48	20 00 00 00 00 00 00 00 00 00 00 00 00 0	19.00	3.50	1.75	3.60 19.00 3.50	325.00 17.00
21160 82 22 22 23 24	1900	4100	154.56	47.84 12.73 1.48	89 89 4 60 89 4 80 84	17.00 8.15 8.00	3.50	1.15	2.80 18.00 3.50	285.00 13 00
81 00 5 5 8 0 8 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5	1600	9800	\$144.56	47.84 12.72 1.48	8.60 9.93 4.48	17.00 3.15 3.00	3.50 3.50	1.15 1.15 .60	2.80 18.00 3.50	\$275.00 \$13.00
Number of Size	Wt. of Boiler, pounds, about	W. of Boller & Full Alen Pixtures, pounds, about	Wall Brackets	Price of Grates Price of Grate Bearer	Price of Rear Arch Bars . Price of Ash Door & Frame Price of Oval Stack Plate .	Price of Binder Bars & Rods Price of Safety Valve Price of Steam Gauge	Price of Water Gauge Price of Water Column Attached	Price of Gauge Cocks (3) Price of Blow-off Cock Price of Check Valve	Price of Stop-Cock Price of Whistle and Pipe Price of Smoke Stack Price of Guy Rods	Price of Boiler Complete . Price of Crating for Export

SMOKE STACKS FOR TWO OR MORE "STANDARD" BOILERS SET TOGETHER.

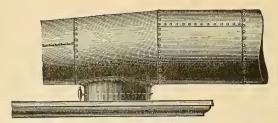


Fig. 1888.
SMOKE CONNECTION "B."

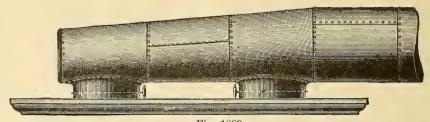


Fig. 1889.
SMOKE CONNECTION "C."

TABLE OF DIMENSIONS OF SMOKE STACKS.

Number of Size,	18	19	20	22	24	25	26	27	28	29	30	31	32	34	36
Diameter of Stack for two Boilers, inches	20	20	24	24	26	30	30	30	34	34	38	38	38	42	46
Diameter of Stack for three Boilers, inches	24	24	28	28	34	34	34	34	38	38	42	42	42	46	48
Diameter of Stack for four Boilers, inches	28	28	34	34	38	38	38	38	42	42	48	48	48	50	54

SMOKE STACKS, CUYS.

For Elbow in Stack, add cost for 8 feet of Stack.

Diameter of Stack, inches		8	10	12	14	16	18	20	22	24	26
No. 16 Iron, per foot						\$0.85	\$0.90	\$0.95	\$1.00	\$1.20	\$1.30
'6 14 '6 '6 '6 '6 '6 '6 '6 '6 '6 '6 '6 '6 '6	Ĭ	.90	.95	1.00	1.10	1.15	1.25	1.35	1.45	1.55	1.70
" 12 " "			1.15	1.30	1.40	1.45	1.55	1.65	1.75	1.85	1.95
" 10 " "				1.65	1.80	1.90	2.00	2.15	2.30	2.45	2.60
Galvanized Wire Rope for Guys, per foot	1	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
Damper in Stack,		2.50	2.75	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00
Umbrella Top for Stack,			3.25	3.50	4.00	4.00	5.00	5.00	6.00	7.00	8.00
Price of Crating for Export, per foot	1	.16	.16	,16	.18	.18	.20	.20	.24	.24	.32
Diameter of Stack, inches		28	30	32	34	36	38	40	42	44	48
No. 16 Iron, per foot		\$1.40	\$1.50								
" 14 " "		1.85	2.00	\$2.15	\$2.25	\$2.40	\$2.50				
" 12 " "		2.00	2.25	2.40				\$2.90	\$3.00		
" 10 " "		2.80	3.00	3.20	3.40	3.60	3.80	4.05	4.25	\$4.50	\$4.75
Galvanized Wire Rope for Guys, per foot	1	.05	.05	.05	.05	.05	.06	.06	.06	.06	.06
Damper in Stack,		4.00	6.00	6.00	6.00	6.00	6.00	7.00	7.00	8.00	8.00
Umbrella Top for Stack,			11.00	12.00	13.00	14.50	16.00	18.00	20.00	23.00	26.00
Price of Crating for Export, per foot	1	.32	.34	.34	.36	.36	.48	.48	.48	.48	.48

558

NEW DRILL CHUCK.

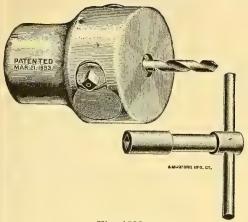


Fig. 1890.

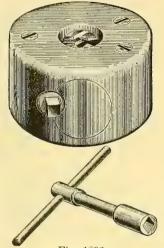
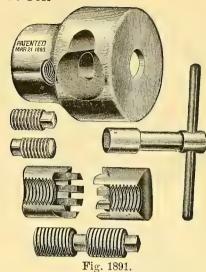


Fig. 1892.



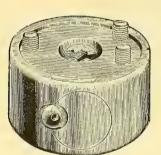


Fig. 1893.

This Chuck is simple in construction, and very strong and durable in all its parts; the body is composed of one piece of metal, and the entire Chuck of but FOUR pieces.

The entire Chuck in the $\frac{1}{4}$ inch and $\frac{1}{2}$ inch sizes is made of steel; in the larger sizes the working parts are of steel and the jaws thoroughly hardened.

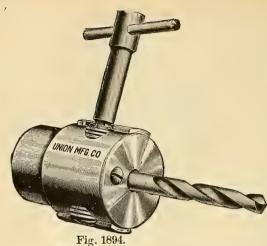
Fig. 1890 shows the Chuck assembled and holding drill ready for work. Fig. 1891 shows the body and working parts of Chuck. The $1\frac{1}{2}$ inch and 2 inch sizes are attached to spindle of machine by face-plate and screws. Fig. 1892 is a front view and Fig. 1893 is a back view.

PRICE LIST OF CHUCKS.

Approxim	ate D	iam.	of]	Body,	incl	ies,	$1\frac{3}{8}$	$2\frac{3}{8}$	$2\frac{15}{16}$	$3\frac{1}{2}$	$5\frac{1}{4}$	$6\frac{1}{4}$
Will Hold	Drill	, inc	hes				$0 ext{ to } \frac{1}{4}$	0 to $\frac{1}{2}$	0 to $\frac{3}{4}$	0 to 1	0 to $1\frac{1}{2}$	0 to 2
Price,							\$7.00	8.00	9.00	10.00	18.00	20.00

PRICE LIST OF PARTS OF CHUCK.

Size, inch			$\frac{1}{4}$	$\frac{1}{2}$, $\frac{3}{4}$	1	$1\frac{1}{2}$	2
Body .			\$2.75	\$3.00	\$3.25	\$3.50	\$6.50	\$7.00
Jaws, per pa	ir		2.75	3.09	3.25	3.50	6.50	7.00
Screws, each	1		1.00	1.25	1.50	1.75	3.50	4.00
Wrench	٠		•50	.75	1.00	1.25	1.50	2.00



THE UNION DRILL CHUCK.

Number.	Diameter, Inches.	Holding, Inches.	Prioe.
000	$1\frac{1}{4}$	0 to $\frac{1}{4}$	\$7.00
00	1 <u>5</u>	0 to $\frac{3}{8}$	7.50
100	$2\frac{1}{4}$	0 to ½	8.00
101	$2\frac{3}{4}$	0 to $\frac{3}{4}$	9.00
102	3 }	0 to 1	10.00

The Union Drill Chuck, as shown is intended to supply the demand for an allround Chuck, capable of heavy as well as light work.

UNION CZAR DRILL CHUCK.

Especially adapted to light and rapid work.

						Holds.	Price.
No.	1,		٠			$0 \text{ to } \frac{3}{16}$	\$5.50
4.6	2,					0 to 5	5.50
6.6	3,	٠			٠	$0 ext{ to } \frac{1}{2}$	\$5.50 5.50 9.00

DIRECTIONS.

To take this Chuck apart, drive the body through the outside shell in the direction of the arrow, as shown in the sectional cut.

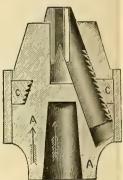


Fig. 1895. SECTIONAL VIEW.

Fig. 1895.

Fig. 1896.

KEY DRILL CHUCK.

This is a regular Geared Scroll Chuck, having a hub adapted for taper arbor, and jaws designed for holding drills and rods.

They are made with jaws same as shown in cut, and unless otherwise specified, such style will be sent. We can, however, furnish them with either No. 1 or No. 2 Step Jaws, or with both sets as may be desired. When Chucks are ordered with "two sets of Jaws," we will send one set each of No. 1 and No. 2 style.

		Price with	Price with	Extra Sets of
Diameter,	Capacity,	One Set	Two Sets	Jawwordered
Inches.	Inches.	of Jaws.	of Jaws.	without Chuck
No. 1, 2	0 to ½	\$6.50	\$8.00	\$2.25
No. 2, $2\frac{1}{2}$	$^{1}_{64}$ to $^{5}_{8}$	8.00	9.50	2.25

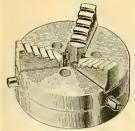
THE YARTFORD.

Fig. 1897.

THE HARTFORD DRILL CHUCK.

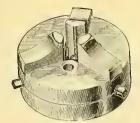
		Diameter, Inches.	Length, Inches.	Weight, Lbs.	Capacity. Inches.
No. 0, .		$1\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{1}{4}$	0 to 1
No. 1, .		$\frac{2\frac{1}{8}}{2\frac{7}{8}}$	$2\frac{3}{4}$	$2\frac{1}{4}$	$0 \text{ to } \frac{1}{2} \\ 0 \text{ to } \frac{3}{4}$
No. 2, .	*	$2\frac{7}{8}$	$3\frac{1}{4}$	$4\frac{1}{2}$	0 to $\frac{3}{4}$
		Price.		a Jaws, Pair.	Extra Screws, Each.
No. 0, .		. \$6.00	\$:	2.00	\$0.80
No. 1, .		. 7.00		2,25	1.00
No. 2, .		. 8.00		2.50	1.20
560					

HE HORTON UNIVERSAL LATHE CHUCK.

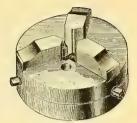


COMMON JAWS. Fig. 1898.

Diameter of



No. 1 Jaws. Fig. 1899.



No. 2 JAWS. Fig. 1900.

Diameter of Body, Inches			PR	ICE L	IST C	F	EITHER	STYLE	OF JAW	٧.
	3	inch	Chuck,	Three	Jaws,		\$18.00	5 inch	Chuck,	$\mathbf{F}\epsilon$
45	4	6 x	6.6	4.4	6.6		22.00	6	• •	4

a 1	3	inch	Chuck,	Three	Jaws,		\$18.00
45	4	6.2	6.6	4.4	6.6		22.00
6	5	6.6	6	6.6	6.6		25.00
7	6	4.6	6.6	6.6	6.6		26.00
$9^{\frac{1}{7}}$	9	4.6	4.6	4.4	64		34.00
121	12	4.4	× 6	6.6	+ 4		44.00
148	15	6.6	44	6.6	+ 6		52.00
$16^{\frac{3}{2}}$	18	. 6	6.6	6 +	4.6		62,00
$19\frac{1}{4}$	21	4.6	4.6	6.6	6.6		80.00
$20\frac{1}{5}$	22	h 6	4.6	64	6.6		90.00
23	24	4.4	4.6	6.6	4.4		100.00
25	26	6.6	+ 6	6.6	4	·	130.00
28	30	6.6	4.6	4.4	6.6		170.00
341	36	46	6.6	6.6	44	Ĭ	230.00
$41\frac{1}{4}$	42	6.6	6.	4	6.6		270.00
		4 7			6	200	

- 5	inch	Chuck,	Four	Jaws,	e	\$30.0
- 6	4.4	+ 6	8.6	4.4		32.0
9	4.6	6.4	6.6	6.6		42.0
12	4.6	6.6	. 6	6.6		56.0
15	6 -	6.6	+ 6	6.4		64.6
18	6.6	s 4	6.6	* *		75.0
21	4.6	4.6	6.6	. 6		95.0
22	4.6	6 4	6 +	. 6		110.0
24	44	6.6	6.4	6.6		120.0
26	4.6	٠.	4.6			160.0
30	6 +	14	6.6	6.6		200.0
36	6 6	4.4	6.4	. 6		285.0
42	6.6	• •	6.6	6.		325.0

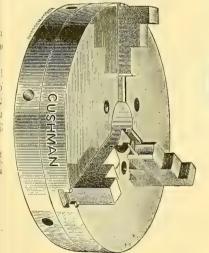
Fig. 1898 shows 3 and 4 inch Chuck.

For other styles of Jaws, see page 562.

CAR WHEEL CHUCKS.

30 inch. \$185.00 36 inch, . . \$250.00

42 inch. . \$300.00



LEVER SCROLL CHUCK.



· Fig. 1902.



Fig. 1903.

	Diameter of	Diameter of	
Diameter.	Hole.	Face-Plate.	
Inches,	Inches.	Inches,	Price.
3	5 8	$2\frac{7}{8}$	\$8.00
4	<u>5</u>	9.8	10.00
6	$1\frac{9}{16}$	4	15.00
9	$1\frac{3}{4}$	$5\frac{3}{4}$	20.00
12	3	7	26.00
15	3	7	32.00
18	4	$7\frac{18}{16}$	38.00
21	4	$7\frac{1}{1}\frac{3}{6}$	48.00

Fig. 1901.

For Chucks with four Jaws add 10 per cent., and for Chucks with two Set Jaws add 20

We can furaish this Chuck, with No. 1 Jaws, in all the sizes mentioned above; with No. 2 Jaws, up to and including 12-inch, and with both sets (No. 1 and No. 2) up to and including 9-inch. Be particular when ordering to state the style of Jaws wanted. Unless otherwise specified, we will send Chucks with No. 1 Jaws. Belts furnished with each Chuck.

THE HORTON UNIVERSAL LATHE CHUCK.

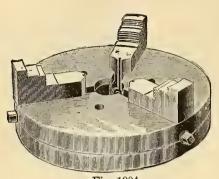


Fig. 1904.

This cut represents Common 6, 9 and 12 inch Chucks with the Patent Jaw. It illustrates all sizes between 4-inch and 15-inch,

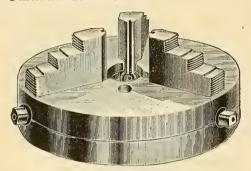


Fig. 1906.

CHUCK WITH OUTSIDE BITES.

This cut gives a view of the 6 and 9inch Chucks with outside bites (not reversible.)

3-inch Chuck . \$18.00 4 . . 22.00 5 . . 25.00 6 . . 26.00 9 . . 34.00 12 . . 44.00 15 . . 52.00		Three-	Jaw,	Eith	er St	yle.
5 ''	3-inch					
6 '	4	. 6				22.00
9 '' 34.00 12 '' 44.00 15 '' 52.00	5	(4			ų	25.00
12 ''	6	6 -	۰			26,00
15 " 52.00	9	6.6				34.00
10	12	66				44.00
	15	66				52. 00
18 " 62.00	18	66	e			62.00
21 " , , , 80.00	21	66	,			80.00
22 " 90.00	22	66				90.00
24 " 100.00		66				100.00
26 "		66				130.00
30 170 00		6+				170 00
36 " 230.00		66				230.00
42 "	-	66	0			270.00

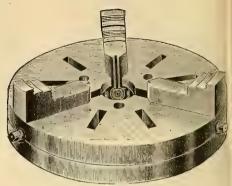


Fig. 1905.

COMMON JAW CHUCK.

This cut gives a view of Three-Jaw Universal Chucks over 12 inches in diameter. Slots are made entirely through the body of chuck, which makes it very convenient for bolting heavy work to if required.

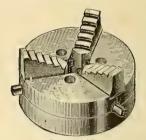


Fig. 1907.

COMMON JAW CHUCK, 4-INCH.

This cut shows 4-inch Common Chuck. It requires a swing of $5\frac{1}{2}$ inches, and will hold work from $\frac{1}{8}$ inch to 4 inches diameter.

	Four-Jaw	, Eif	her S	tyle.	
5-in	ch Chuck				\$30.00
6	6.6				32.00
9	4.6			•	42.00
12	66				56.00
15	66				64.00
18	66				75.00
21	66				95.60
22	66				110.00
24	4.6				120.00
26	66				160.00
30	66				200.00
36	66				285.00
42	6.6	,			325.0

THE HORTON COMBINATION LATHE CHUCK.

UNIVERSAL, INDEPENDENT AND ECCENTRIC.

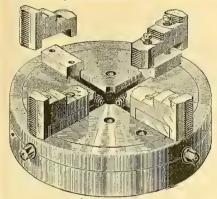


Fig. 1908.

With or without Reversible Jaws, as designated in order.

Price, Three-Jaw, either style of Jaw:

5-1	Inch,	\$25.00	22-Inch,	\$90.00
6	6.6	26.00	24 "	100.00
9	66	34.00	26 "	130.00
12	66	44.00	30 "	170.00
15	66	52,00	36 "	230.00
18	66	62.00	42 "	270.00
21	6.6	80.00		

UNIVERSAL LATHE CHUCK. FOR CUTTING-OFF LATHE.

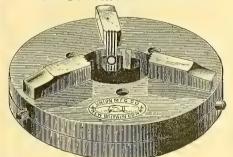


Fig. 1910.

		A 155 .			
4-in.,	with	1½ in.	hole	through	centre.
6	66	$1\frac{3}{4}$	66	66	6.6
9	66	$2\frac{1}{2}$	66	6.4	66
12	66	3	66	66	6.6
15	66	$4\frac{1}{2}$	66	6.6	6.6
18	66	$4\frac{7}{2}$	66	66	66
21	66	$5\frac{1}{4}$	66	6 6	4.6
24	66	$5\frac{1}{4}$	66	6 6	66

Two, THREE OR FOUR-JAW.

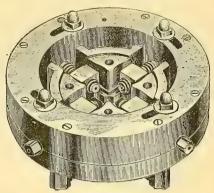


Fig. 1909.

This cut gives a view of the back of Fig. 1908 Four-Jaw Combination Chucks, showing the thumb-nuts and slots in shell, by means of which the Chuck is changed from Universal to Independent.

Price, Four-Jaw, either style of Jaw:

				0.000
5-3	Inch,	\$30.00	22-Inc	h, \$110.00
6	6 6	32.00	24 "	120.00
9	66	42.00	26 "	160.00
12	66	56.00	30 "	200.00
15	66	64.00	36 "	285.00
18	66	75.00	42 ''	325.00
21	66	95.00		

UNIVERSAL MILLING MACHINE CHUCK.

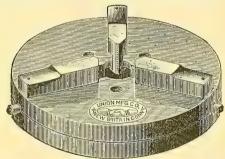


Fig. 1911.

The above Universal Chuck is especially designed for use on Milling Machines and Grinding Machines. The hole in the centre is made large enough in diameter to allow pipes or rods to pase entirely through the Chuck, and the bite of the jaws is on both sides of the pinion.

For price see above list.

DIMENSIONS OF

THREE-JAW UNION COMBINATION CHUCK.

This Chuck is a Combination Chuck, and can be used either Universal, Independent or Eccentric.

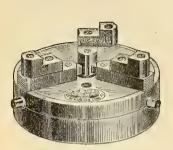


Fig. 1912. FRONT VIEW.

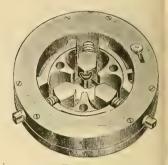
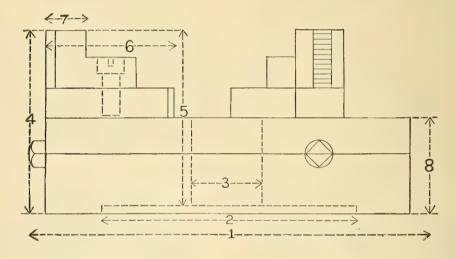


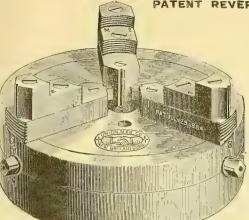
Fig. 1912. Back View.



Size.	Hold.	Weight.	1	2	3	4	5	6	Par a	8
6	$6\frac{7}{16}$	15	$7\frac{7}{8}$	311	14	318	3	$2\frac{7}{8}$	7 8	$2^{-1}_{\bar{1}\bar{6}}$
9	$9\frac{1}{2}$	$30\frac{1}{2}$	$10\frac{15}{16}$	$5\frac{1}{32}$	$1\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{1.5}{1.6}$	3_{16}^{13}	1	2 1 6
12	$12\frac{1}{2}$	47	$13\frac{3}{8}$	$6\frac{3}{8}$	18	$4\frac{7}{8}$	$4\frac{1}{8}$	$4\frac{1}{2}$	1	211
15	$15\frac{5}{8}$	66	$16\frac{3}{8}$	716	2	$5\frac{1}{8}$	$4\frac{3}{8}$	5	1	03
18	$18\frac{5}{8}$	$82\frac{1}{2}$	$18\frac{1}{4}$	8	$2\frac{3}{8}$	5 5	$4\frac{7}{8}$	$6\frac{1}{4}$	$1\frac{1}{8}$	3
21	$22\frac{1}{2}$	111	$20\frac{5}{8}$	$9\frac{21}{32}$	$2\frac{3}{4}$	$5\frac{7}{8}$	5	$7\frac{1}{2}$	$1\frac{1}{4}$	3
24	$24\frac{1}{2}$	$131\frac{1}{2}$	$22\frac{1}{2}$	10	$2\frac{3}{4}$	$5\frac{7}{8}$	5	$7\frac{1}{2}$	14	3
26	27	200	$26\frac{1}{2}$	12	$3\frac{1}{4}$	7	$5\frac{7}{8}$	$7\frac{1}{2}$	11	31
30	$31\frac{1}{2}$	290	31	16_{16}^{1}	$3\frac{1}{2}$	7	$5\frac{7}{8}$	$7\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{2}$
36	37	390	36흏	$17\frac{3}{4}$	4	7	$5\frac{7}{8}$	$9\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{1}{2}$

For prices see page 565.

UNION COMBINATION LATHE CHUCK. PATENT REVERSIBLE JAWS.



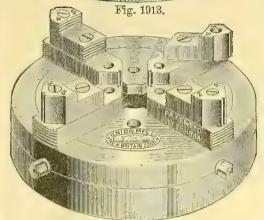


Fig. 1914.

Price Three Jawed Chucks.

Fig. 1913.

Dian	aeter.				Price.
6-in	eh Chuck				\$26.00
9	66	۰		•	34.00
12	66			۰	44.00
15	.6	9	۵		52,00
18	66				62.00
21	66				80.00
24	66		۰		100.00
30	66	٠			170.00
36	66				230.00
42	66			9	270.00

Price Four Jawed Chucks.

Fig. 1914.

		18	rate.		
Diam	eter.				Price.
6-inc	h Chuck	4			\$32.00
9	6.6	0	a		42.00
12	6.6	0		9	56.00
15	4.0		٠		64.00
18	6.6				75.00
21	6.6				95.00
24	6 6				120.00
30 .	6.6				200,00
36	4.6				285.00
42	6 6				325.00

For table of dimensions of above Chucks, see page 564.

THE CUSHMAN COMBINATION LATHE CHUCK.

Fig. 1915.

Concentric or Eccentric, Universal or Independent.

Jaws Reversible.

Nominal Size, Inches.	Diameter Including Projecting Screw- Heads Inches.	Diameter of Hole through Chuck. Inches	Diameter of Face-Plat Recess. Inches.		ce
4	$5\frac{7}{8}$	1	$3\frac{3}{8}$	\$25,00	
6	$8\frac{3}{16}$	$1\frac{1}{2}$	$4\frac{3}{4}$	26 00	32.00
9	$11\frac{1}{4}$	$2\frac{1}{4}$	7	34.00	42.00
12	$13rac{ ilde{7}}{8}$	$2\frac{\tilde{1}}{2}$	7	44.00	56.00
15	17	$3\frac{1}{2}$	10	52.00	64.00
18	20	$3\frac{\bar{1}}{2}$	10	62.00	75.00
21	23 1	4^{-}	12	80.00	96.00
24	$26\frac{1}{2}$	4	12	100.00	120.00

An extra set of jaws (No. 2) is furnished with the 4-inch, as the jaws in this size do not reverse.

The jaws in the 6-inch also do not reverse, but extra sets can be furnished at \$5.20 per set of three and \$6.40 per set of four.

Bolts and wrench furnished with each Chuck.

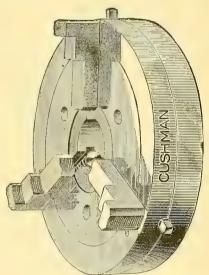


Fig. 1915.

IMPROVED INDEPENDENT CHUCKS.

REVERSIBLE JAWS.

UNION.

HORTON.

CUSHMAN.

WHITON.

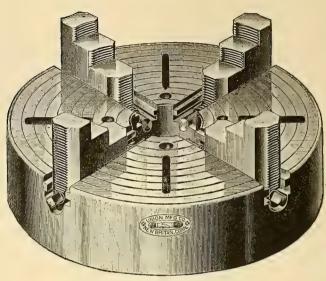


Fig. 1920.

Sizes.	Diameter Including Projecting Pinion Head.	Weight, Pounds.	Diameter of Hole Through Centre, Inches.	Diameter of Recess for Face-Plate, Inches.	Capacity of Chuck, Inches.	Price.
4	$4\frac{3}{4}$	6	1	$3^{1.1}_{1.6}$	$4\frac{1}{2}$	\$14.00
6	$6\frac{1}{2}$	11	2	$5\frac{1}{32}$	$6\frac{3}{4}$	18.00
8	$8\frac{9}{16}$	25	2	$5\frac{1}{32}$	$8\frac{3}{4}$	22.00
9	95	34	2	5_{32}^{1}	$9\frac{3}{4}$	24.00
10	$10\frac{1}{2}$	35	2	$5\frac{1}{32}$	$10\frac{3}{4}$	26.00
12	$12\frac{3}{4}$	54	3	$7\frac{1}{16}$	$12\frac{3}{4}$	30.00
14	$14\frac{5}{8}$	72	3	$7\frac{1}{16}$	$14\frac{3}{4}$	34. 00
15	15§	80	3	716	$15\frac{3}{4}$	35.00
16	$16\frac{11}{16}$	86	3	716	$16\frac{3}{4}$	38.00
18	$18\frac{1}{2}$	113	4	8	19	44.00
20	$20\frac{5}{8}$	122	4	10	21	50.00
22	$22\frac{7}{8}$	172	$4\frac{3}{4}$	10	23	57.00
24	$24\frac{3}{4}$	193	$4\frac{3}{4}$	10	25	65,00
26	$27\frac{1}{4}$	275	5	12	27	80.00
28	$29\frac{1}{2}$	375	5 1	12	29	100.00
30	$30\frac{1}{8}$	400	$5\frac{1}{2}$	$16\frac{1}{8}$	31	120.00
32	$32\frac{1}{2}$	460	$5\frac{1}{2}$	$16\frac{1}{8}$	33	150.00
34	$34\frac{1}{2}$	490	$5\frac{1}{2}$	$17\frac{3}{4}$	35	180.00
36	$36\frac{1}{2}$	495	$5\frac{1}{2}$	$17\frac{3}{4}$	36 3	210.00

566

WHITON PATENT GEARED SCROLL CHUCKS.

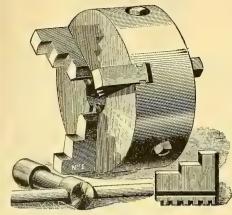


Fig. 1921.

All the Chucks of this line will hold work firmly and are designed to be mounted on Face Plates. Four-Jaw Chucks are provided with only two openings for the key.

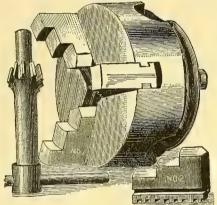


Fig. 1922.

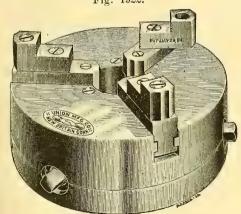


Fig. 1923.

				One Set	Two Sets	Extra Sets Jaws, ordered without
Si	ze.			Jaws.	Jaws.	Chuck.
21	inch -	3	Jaws,	\$7.50	\$9.00	\$2.00
~ 2	HOH	4	66	8.50	10.50	2.50
3	66	∫3	66	10.00	12.00	2.50
O		4	66	11.00	13.60	3.00
4	66	∫3	66	12.00	14.40	3.00
-		4	66	13.20	16.40	3.75
5	66	<u>}</u> 3	66	15.00	18.00	3.50
U		(4)	66	16.50	20.50	4.50
6	66	3	66	18.00	21.60	4.00
U		4	- 6	19.80	24.60	5.25
72	66	3	6.6	20.00	24.00	4.50
12		14	66	22.00	27.30	6.00
9	66	3	66	24.00	28.80	5.50
ð		14	6.6	26.40	32.80	7.50
$10\frac{1}{2}$	66	3	66	27.00	32.40	6.50
102		14	6.6	29.70	37.00	8,50
12	66	} 3	66	30.00	36.00	7.50
10		4	66	33.00	41.00	9.50
15	6.6	3	4.6	40.00	48.00	
15		4	6.6	44.00	54.60	12.00

IMPROVED GEARED OR PINION KEY CHUCKS.

Si	ze.			One Set Jaws.	Two Sets Jaws,	Extra Sets Jaws, ordered without Chuck.
3	inch	$\begin{cases} 36\\ 4 \end{cases}$	Jaws,	\$10.00 11.00	\$12.00 13.60	\$2.50 3.00
$4\frac{1}{2}$	66	$\begin{cases} 3 \\ 4 \end{cases}$	66	$14.00 \\ 15.40$	17.00 19.00	3.50 4.50
6	66	\{\ 3\\ 4	66	$18.00 \\ 19.80$	$21.60 \\ 24.60$	$\frac{4}{5.25}$
9	66	$\begin{cases} 3 \\ 4 \end{cases}$: 6 6 6	24.00	28.80 32.80	5.50 7.50

UNION CEARED SCROLL CHUCK.

REVERSIBLE JAW.

				Dia	ameter	Diameter of	
				of	Hole.	Face Plate.	Three
Dian	neter.			In	ches.	Inches.	Jaws.
$2\frac{1}{2}$	inch			•	<u>5</u>		\$7.50
3	66				<u>5</u>	$2\frac{7}{8}$	10.00
4	66				$\frac{3}{4}$	$3\frac{1}{16}$	12.00
5	6 6				$\frac{7}{8}$	$3\frac{3}{4}$	15.00
6	66	•			$1\frac{9}{16}$	$4\frac{3}{4}$	18.00
$7\frac{1}{2}$	66				2	$4\frac{3}{4}$	20.00
9	66		•	٠	$2\frac{1}{2}$	$5\frac{3}{4}$	24.00
12	4.6				3	. 7	30.00
15	66				$3\frac{1}{4}$	8	40.00

For price of 4-Jaw Chucks add 10 per cent.

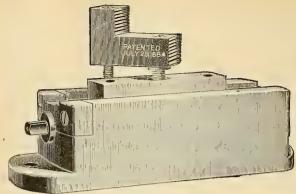


Fig. 1924.

FACE-PLATE JAW WITH REVERSIBLE JAW.

We furnish two bolts with each Jaw, and a steel key with each set.

Size, Inches.	Price per Set of Three, with either Solid or Reversible Jaws.	Price per Set of Four, with either Solid or Reversible Jaws.
8 inch,	\$45.00	\$60.00
10 "	60.00	80.00
12 "	90.00	120.00

EXTRA HEAVY FACE-PLATE JAWS.

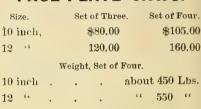


Fig. 1925.

UNION TWO-JAWED BOX BODY CHUCK.-with slip Jaws.

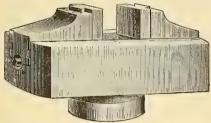


Fig. 1926.

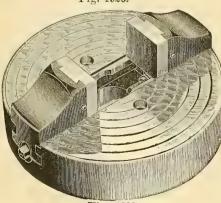


Fig. 1927.

			EXTRA SLIP JAWS.			
Size, Inches.	Jaws take Inches.	Box Body.	Iron, Per Pair.	Steel, Per Pair,		
i é	3	\$24.00	\$1.00	\$2 00		
9	4	30.00	1.25	3.00		
12	6	36.00	1.25	4.00		
15	8	42.00	1.50	5.00		
			A			

We can furnish this Chuck with Jaws operating independent, when so specified, without extra charge.

ROUND BODY INDEPENDENT TWO-JAW CHUCKS.

					Slip Jaws,	\$20.00
- 8	+ 6	4.6	4.4	6.	66	24.00
10	6.6	4.6	6.6	4.4	6.6	28.00
12	6 6	66	6.6	4.6	6.6	34.00
14	4.4	6.6	6.6	4.4	4.6	40.00
15	4.4	4.6	6.6	6.6	4.6	42.00

Prices on other sizes on application.

SLIP JAWS FOR

6	in. Chuck,	Round	Body,	reg. size,	per pair,	\$2.00
-8	6.6		64	4.		2.25
10	66		4.6	6.6	6.6	3.00
12	4.6		6.6	66	6.6	4.00
14	66	** .	44	66	4.6	4.50
15	66		66	6.6	66	5.00

DROP-FORCED LATHE DOGS. THEY ARE DROP-FORCED FROM MILD STEEL.

Size					Each.	Size.				Each.
0	ıch				\$0.50	2 inch				\$1.40
2					.60	21 "				1 60
4	14			•	.70	3				1.80
1		•	•	•	.80	$3\frac{1}{2}$ "				2.00
14	16		•		.95	4 "				2.30
12	4	•	•		1.10	5 "	with	straigh	t tai	1 - 4.00
14 .		0			1.25					

HEAVY STEEL DOG.



Fig. 1929.

DIE DOG.

Fig. 1928.



Fig. 1930.

	9	
No.		Each.
1	11/4 inch between sides	\$3.00
	Extra Dies, per pair	.50
6)	9 inches hatween sides	4.00

Extra Dies, per pair

This Dog has a very heavy Boss, so that if the thread wears, a heavier screw can be substituted.

No.	Inch.	Price.	No.	Inch.	Price.
1	3	\$0.40	13	$2\frac{1}{4}$	\$1.35
2	1/2	.50	14		1.45
3	5	.60	15	$\frac{2\frac{1}{2}}{3}$	1.60
4	34	.60	16	31	1.80
5	1 /8	.70	17	4	2.10
6	1	.70	18	41	2.75
7	$1\frac{1}{8}$.80	19	5	3.25
8	$1\frac{\gamma}{4}$.80	Full	Set of 19,	
9	$1\frac{\hat{3}}{8}$.95	20 (ext		4.00
10	15	.95	21 ` ''	6	5.00
11	13	1.10	22 46	7	6.00
12	2	1.20	23 ''	8	7.00
One	small set of	f 8, by $\frac{1}{4}$ in.	to 2 in		. 6.25
		$y \frac{1}{4}$ to 2^{2} in.		v sto 4	in. 13 20

CLAMP DOG.

.75

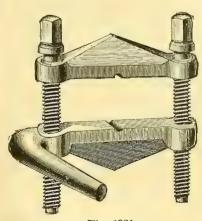


Fig. 1931.

DROP-FORGED.

No. 1, 1	13 inch l	etween	scre	WS			\$1.50
No. 2. 2		6.6	4.6				2.00
No. 3, 2	23	6.6	6.6				2.50
Per set	of three				-		5.50

PATENT CLAMP DOG.

Patent Clamp Dog for holding taper pieces. It can also be used on straight pieces with the same good result.

No.	1, 1	$1\frac{3}{4}$	inch	between	scre	WS		\$1.75
No.	2, 5	2 <u>i</u>	* 6		6.6		,	2.25
No.	3, 2	2 <u>\$</u>	4.6	6.6	64			2.75
			four					7.25

MALLEABLE IRON CLAMP DOCS.

No. 1, opens				\$1.00
No. 2, "				1.10
No. 3, "			,	1.30
No. 4. "	3			1.60
Sets of four				5,00

MALLEABLE IRON CLAMPS.



Fig. 1932.

3 inch, per doz., \$4.50

4

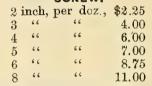
5

6



Fig. 1933.

HEAVY PATTERN SCREW.



By turning the Bolt, Fig. 1932, one-quarter turn to the left, it can be moved its full length out or in; when turning it to the right it operates like any other screw.

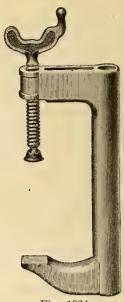
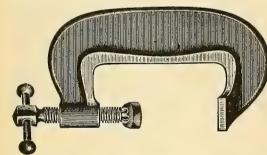


Fig. 1934.

EXTRA HEAVY.

6	inch,	per doz	,\$11.00
8	6.6	66	15.00
10	66	66	16.00
12	66	66	17.00



6,50

7.50

9.00

11.50

Fig. 1935.

HEAVY STEEL CLAMP.

No.	Opens.	Price	No.	Opens.	Price.
1.	2 in.	\$1.75	7.	10 in.	\$3.75
2.	3 "	2.00	8.	12 "	4.25
3.	4 66	2.25	9.	14.66	5.00
4.	5 "	2.50	10.	16 "	6.00
5.	6 "	2.75	11.	18 "	7.00
6.	8 "	3.25			

Full Set, 11 sizes, \$40.50. The back is $2\frac{1}{2}$ inches from centre of screw.

EXTRA HEAVY STEEL BRIDGE CLAMPS.

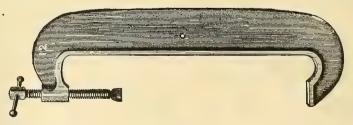
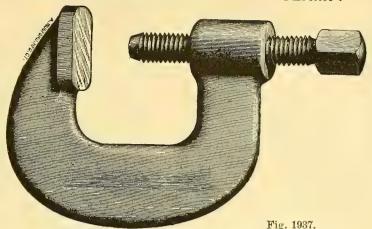


					Fig.	1936.					
No.	12 ope	ns 24	inches	8			•	-	,		\$12.00
	13 "							1	,	66	16.00

DROP FORCED STEEL "C" CLAMP.



No.	Opens.	Weight.	Price.	No.	Opens.	Weight,	Price.
1	$1\frac{1}{4}$ in.	5 ounces	\$1.00 each.	4	$4\frac{1}{2}$ in.	7½ pounds	\$3.25 each.
3	$2\frac{1}{4}$ in.	2 pounds	2.00 each.	5	$6\frac{1}{5}$ in.	11 pounds	4.00 each.
3	3∮ in.	54 pounds	2.50 each.		_		2.05 cach.

THE RENSHAW RATCHET DRILL.

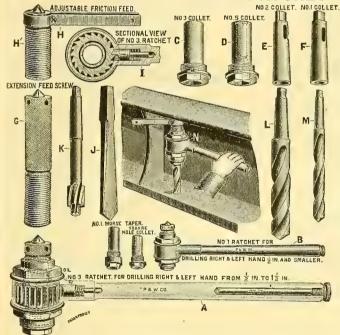


Fig. 1938.

No. 1 has one collet for drills, with shank \(\frac{1}{32}\) inch square at shoulder, and one collet for drills, fitting No. 1 Morse's Standard Taper Socket. Weight, 16 ounces. Price, \$11.00. Discount for either collet, if not wanted, \$1.60 \(\text{, Weight, 1 ounce each.}\)

No. 3 has one collet, No. 5, for drills, with shank $\frac{1}{15}$ square at shoulder, of $\frac{1}{2}$ to $1\frac{1}{2}$ inches diameter, which are the extreme sizes that this ratchet is adapted to carry, and collets Nos. 1, 2 and 3, for Morse's Standard Taper Shanks. No. 3 and No. 5 collets are held in the spindle by screw-thread. No. 1 and No. 2 collets are tapered externally to fit No. 3 socket. Deductions will be made for collets, when not wanted, as follows: No. 1, weight 8 ounces, and No. 2, weight 6 ounces, \$1.10 each; Nos. 3 and 5, weight 8 ounces each. \$1.75 each. Price, with four collets, \$15.00. Weight 8 pounds, 14 ounces.

The No. 3 ratchet for use of boiler-makers, for whose use it is especially adapted, is provided with an extended feed-screw, having a knurled shank 3½ inches long, by which the ratchet may be held by hand in starting the drill, and fed by hand also. When this extended screw is substituted for the regular one, the price is not changed; if it is taken as an extra attachment, it is furnished at \$3.50.

An adjustable friction feed attachment can be furnished for \$4.00.

	No 1.	No. 3.
Length of handles over all	$9\frac{1}{2}$ in.	18 in.
Length from top of spindle to bottom of feed collet	3 in.	5 in.
Length of feed	$1\frac{1}{2}$ in.	$2\frac{3}{4}$ in.

"RAILROAD" PACKER RATCHET DRILLS.

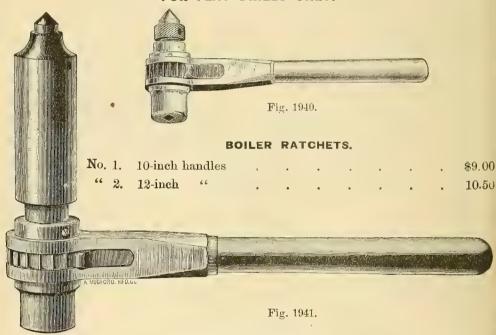
Made in two sizes, with hexagon sleeve. We can furnish these sleeves to fit No. 4 and No. 5 Regular Packer Ratchet; also No. 4 Packer Ratchet with taper Socket.

Drop Forged from the best Bar Steel for the purpose.

No		Each
4.	Packer Ratchet, "Railroad," 17 inch Handles	\$19.00
5.	" 20 " "	23.00
4.	Taper Socket Packer Ratchet, "Railroad," 17 inch	
	Handles	25.00
4.	Hexagon Sleeve, with screw	4 25
5.		5.10

Fig. 1939.

GENUINE PACKER RATCHET DRILLS. FOR FLAT DRILLS ONLY.



PACKER RATCHETS.

No. 1.	10-inch handles	\$10.50	No. 4.	17-inch handles	\$19.00
" 2.	12-inch	13.50	· · 5.	20-inch	23.00
66 9	15 inch 66	16.00			

TAPER SOCKET RATCHET DRILLS, "PACKER." WITH TAPER HOLE IN SOCKET.

No. 2. 12-inch handle, taking No. 1 Morse Taper Shank Drills, $\frac{5}{3}$ to $\frac{25}{3}$, inclusive . \$16.00 ... 3. 15-inch ... 2 ... $\frac{2}{3}$... $\frac{1}{3}$ to 2 inches inclusive ... 25.00 ... 4. 17-inch ... 25.00

For Extra Drill Sockets and Sizes see Page 73.

IMPROVED PATENT UNIVERSAL ANGULAR AND RATCHET DRILLING MACHINE.

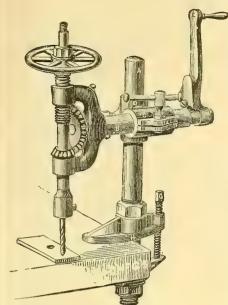


Fig. 1942.

ANVIL, VISE AND DRILL.

Inserted Steel Vise Jaws.

There is no more convenient tool than this Anvil, Vise and Drill. The Anvil has a steel face, 4x8 inches, the vise jaws are $3\frac{1}{2}$ inches wide, and are steel-faced. The Drill Standard and Spindle are steel. The Spindle is bored for Drills with $\frac{1}{2}$ inch shank. With each Drill Press we furnish chuck to hold drills smaller than $\frac{1}{4}$ inch. One $\frac{1}{4}$ drill with $\frac{1}{2}$ inch shank is furnished with every complete Vise and Drill.

Weight of Anvil, Vise and Drill, 80 lbs. Price, \$18.00.

Weight of Anvil and Vise, 60 lbs. Price, \$10.00.

Weight of Drill Press, 20 lbs. Price, \$8.00.

These Drilling Machines are now made of steel, and are first-class in all respects. For repair work in mills they are almost indispensable, as they can be attached to a broken machine without taking it apart, and swung around to drill at any angle. By placing the crank on the drill spindle, it will work with a ratchet or without. We send a chuck with each machine, which will hold \(\frac{1}{16}\) to \(\frac{1}{4}\) inch drills. One Twist Drill, \(\frac{1}{4}\) inch, with \(\frac{1}{2}\) inch shank, is sent with each machine. For \(\frac{1}{4}\) inch drills, and all larger sizes, the \(\frac{1}{2}\) inch shanks are recommended.

PRICE LIST.

No. 1.	Weight, 34 lbs.		
			\$20.00
No. 2.	Weight, 64 lbs.	Drills up to	
	1 inch hole		25.00
No. 3.	Weight, 108 lbs.	Drills up to	
	1½ inch hole		40.00

No. 2 Drill has two sets of gears, making either speeded or geared back machine.

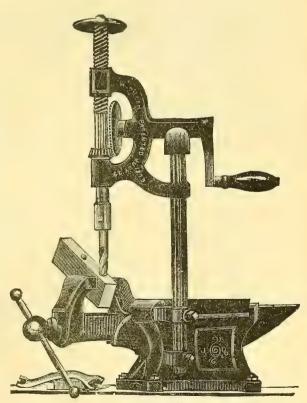
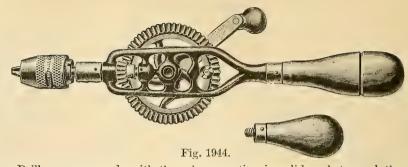


Fig. 1943.

HAND DRILL.

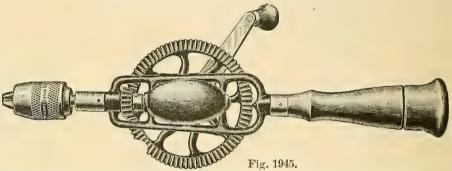


These Drills are now made with three jaws, resting in solid sockets, and there are no springs to get out of place or out of order. The chucks are nickeled and the handles Cocobola. They hold drills from 0 to $\frac{8}{16}$.

A side handle, as shown in cut, is now furnished with this drill.

Fig. 01944 is same as Fig. 1944, except it is double-geared. Length over all, 111 inches.

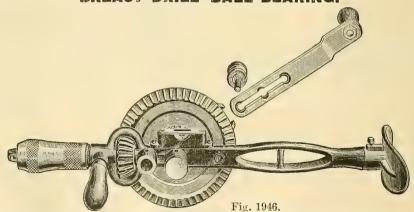
HAND DRILL-BALL BEARING.



This Drill is same in general finish as No. 1, described above. It has cut gears and an adjustable friction roll to prevent gears from springing out of engagement. The chuck holds from 0 to $\frac{1}{6.7}$.

Price, with eight fluted points, Per doz., \$30.00

BREAST DRILL-BALL BEARING.



Changeable gear from even to speeded, about 3 to 1. Holds from $\frac{5}{64}$ up.

Fig. 1946—Drive wheel 5 inches diameter, Fig. 01946—Same as Fig 1946, except has "D" Handle instead of Breast-Plates, and for car shop use, Per doz., 30.00

DRILLING MACHINES.

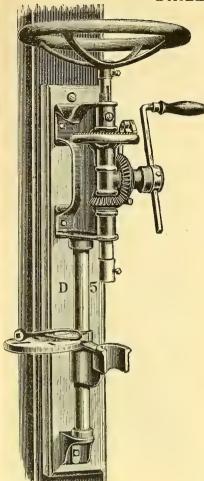


Fig. 1947.

An Iron Bed Machine,
Has three changes of feed,
Drills to One Inch Diameter Hole,

FIG. 1948.-STRAIGHT TABLE.
Price, \$15,00.

FIG. 1949.—SWINGING TABLE.
Price, \$16.00.

Hole in Spindles either $\frac{1}{2}$ -inch or $\frac{41}{64}$ as ordered,

A Strong, Serviceable Drill Press.

Compact and thoroughly well-made machine in every particular.

Drills to 1-inch diameter hole.

Drills to centre of 14-inch circle.

Swinging Table Easily Adjusted to Height.

FIG. 1947.—SWINGING TABLE.
Price, \$8.50.

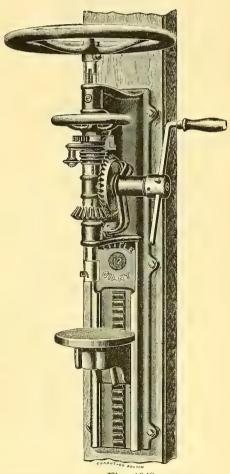
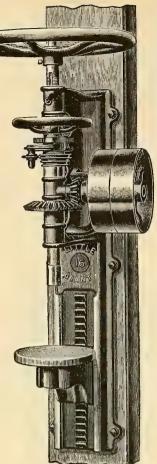


Fig. 1948.

For Drilling Machine Vise see page 577.



DRILLING MACHINES FOR POWER.

We can furnish this Mach ne with two step Cone
Pulley, if desired, at same price,

FIG. 1950.—STRAIGHT T BLE.
Price \$18,00.

FIG. 1951. SWINGING TABLE.

Price, \$19.00.

For Drilling Machine Vise see page 577.



Price, \$21.00.

FIG. 1953.-SWINGING TABLE. Price, \$23.00.

For Counter Shafts see page 577.

For Drilling Machine Vise see page 577.

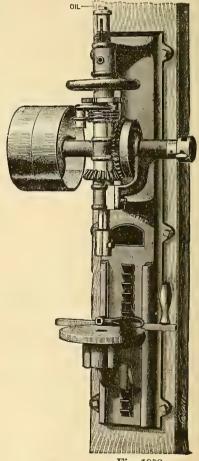


Fig. 1952.

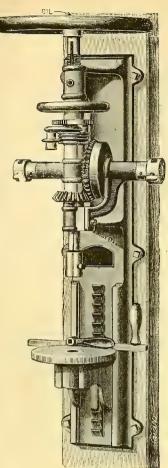


Fig. 1954.

DRILLING MACHINE.

Use Left-hand Crank for Large Drills. The power is multiplied one and one-half times.

Use the Right-hand Crank for Small Drills.

The speed is multiplied one and one-half times.

Drills to $1\frac{1}{4}$ inches.

Fig. 1954. STRAIGHT TABLE . Price, \$18.00
" 1955. SWINGING TABLE. . " 20,00

 $\frac{1}{2}$ or $\frac{41}{64}$ inch hole in spindle, as desired.

DRILLING MACHINE VISE

For holding all shapes of Iron.

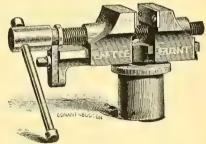


Fig. 1957.

Has steel jaws; hole through shank to take any length. Arranged so as to be in centre with spindle, or, if desired, can be thrown to one side. Jaws are operated by right and left hand screw.

This Vise can be used on Figs. 1948, 1950, 1952, 1954 Drills.

			Price.
Complete	•	٠	\$8.00

COUNTERSHAFT FOR DRILLING MACHINES.

See page 576.

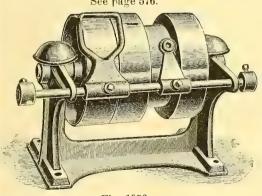


Fig. 1956.

577

UPRICHT DRILLS, 20-INCH SWING.

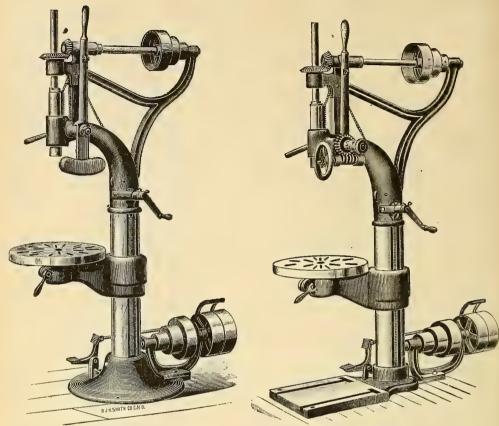


Fig. 1958. Weight, 475 Lbs.

Fig. 1960. Weight, 525 Lbs.

Fig. 1958.	20-inch Drill with lever feed, round base, price	\$80.00
Fig. 1959.	20-inch Drill with combined lever and screw feed, round base, price	90.00
Fig. 1960.	20-inch Drill, combined lever and screw feed, square base, price.	95 00
Fig. 1961.	20-inch Drill, lever feed, square base, price	85.00

Fig. 1958 shows the plain lever feed and round base, and Fig. 1960 shows combined lever and screw feed and square base.

The table revolves in the supporting arm and may be swung to right or left out from under the drill spindle. The bevel gears are accurately cut from solid blanks. The cog rack is forged from steel, and the teeth are milled out to gauge. The pinion on the cross shaft is forged from a steel bar, turned to size, and the teeth cut to a gauge.

We can furnish these Drills with friction pulleys for tapping purposes when so desired.

SPECIFICATIONS.

Height, 63 inches. Diameter of column, $5\frac{1}{4}$ inches. Diameter spindle, $1\frac{3}{16}$ inches. Vertical travel spindle, $7\frac{1}{2}$ inches. Vertical travel spindle to table, 28 inches. Greatest distance spindle to table, 28 inches. Distance from spindle to floor, 42 inches. Distance from spindle to top of square base, 40 in. Diameter large pulley on cone, 7 inches. Diameter small pulley on cone, 3 inches. Cones carry 2 in. belt, countershaft pulleys, $2\frac{1}{4}$ in. Spindle bored No. 2 Morse Taper.

20-INCH STANDARD UPRIGHT DRILL. WITH POWER FEED AND AUTOMATIC STOP.

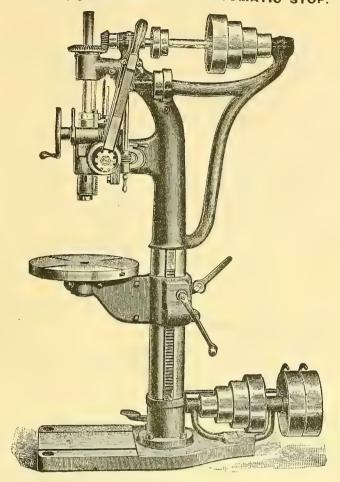


Fig. 1962

SPECIFICATIONS.

Distance from post to centre of table, $10\frac{1}{4}$ in. Diameter of table, $16\frac{1}{2}$ in. Vertical traverse of table, 15 in. Greatest distance from spindle to base, 41 in. Greatest distance from spindle to table, 25 in. Diameter of spindle, $1\frac{1}{2}$ in. Hole in spindle fits Morse taper No. 3. Driving pulleys are 10 in. x $2\frac{1}{2}$ in. Cone pulleys carry $2\frac{1}{4}$ in. belt. Speed of lower shaft for ordinary work, 275 revolutions. Floor space required, 16 in. x 48 in. Total height of machine, $68\frac{1}{2}$ in. Weight, 650 lbs.; boxed, 850 lbs. Price,

21-INCH UPRICHT DRILL.

WITH BACK CEARS, POWER FEED, AUTOMATIC STOP, WHEEL AND LEVER FEED COMBINED.

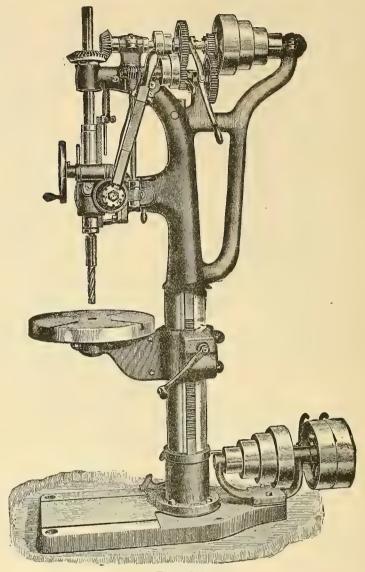


Fig. 1963.

This machine is designed to meet the requirements for an all around tool for light or medium class work, and is very convenient to handle.

SPECIFICATIONS.

Diameter of spindle $1\frac{1}{2}$ inches. Vertical traverse of spindle 10 inches. Diameter of table $18\frac{1}{2}$ inches. Vertical traverse of table $15\frac{1}{2}$ inches. Distance from post to centre of spindle $10\frac{5}{8}$ inches. Greatest distance from spindle to base $43\frac{1}{2}$ inches, from spindle to table 25 inches. Hole in spindle conforms to Morse No. 3 taper. Driving pulleys are $10x2\frac{1}{2}$ inches. Width of belt on cones $2\frac{1}{4}$ inches. Speed of lower shaft for ordinary work 275 revolutions. Floor space required 52x22 inches. Total height 78 inches. Weight 850 lbs.; boxed 1,000 lbs. Price . . . \$

IMPROVED 25-INCH STANDARD UPRICHT DRILL.

With back gears, power feed and automatic stop.

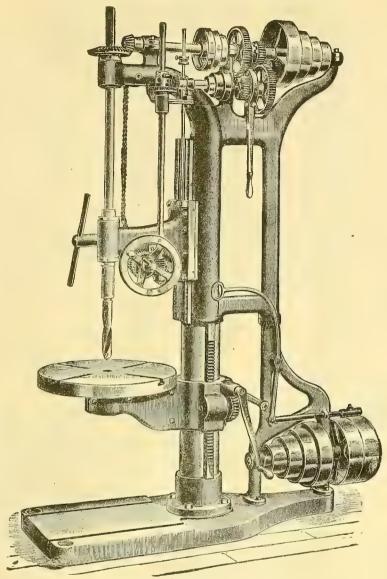


Fig. 1964.

For capacity and convenience in operating this Drill has no superior.

SPECIFICATIONS.

Distance from post to centre of table, $12\frac{7}{3}$ in. Greatest distance from spindle to base, 50 in. Greatest distance from spindle to table, $33\frac{1}{2}$ in. Vertical traverse of spindle, 23 in. Hole in spindle conforms to Morse taper No. 4. Diameter of spindle, $1\frac{5}{3}$ in. Diameter of face plate, 22 in. Width of belt on cones, $2\frac{1}{2}$ in. Diameter of driving pulleys, 12 in. Face of driving pulleys, 3 in. Speed of lower shaft, 275 revolutions. Automatic feeding capacity to spindle, 23 in. Required floor space, 24 in. x 60 in. Weight, 1,600 lbs.; boxed 1,800 lbs.

30 AND 36 INCH UPRICHT DRILLS.

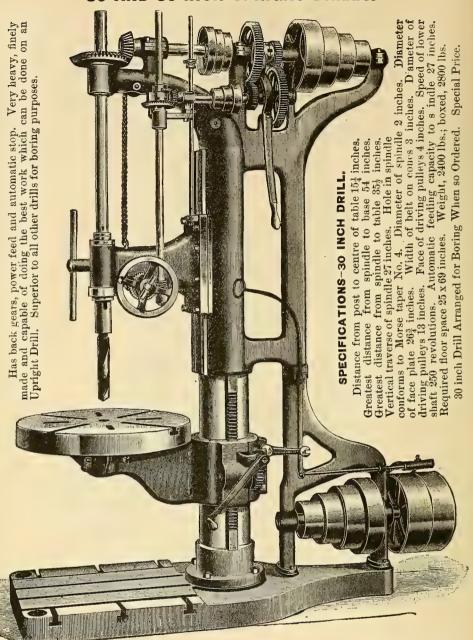


Fig. 1965.

SPECIFICATIONS-36 INCH DRILL.

Distance from post to centre of table $18\frac{3}{8}$ inches. Greatest distance from spindle to base 56 inches. Greatest distance from spindle 29 inches. Hole in spindle conforms to Morse Taper No. 4. Diameter of spindle $2\frac{1}{8}$ inches. Width of belt on cones 3 inches. Diameter of driving pulleys 14 inches. Face of driving pulleys 4 inches. Speed of lower shaft 225 revolutions. Automatic feeding capacity to spindle 29 inches. Reouired floor space 30×84 inches. Weight 4000 lbs.; boxed, 4400 lbs.

PRICES ON APPLICATION.

14-INCH SWING ENGINE LATHE.

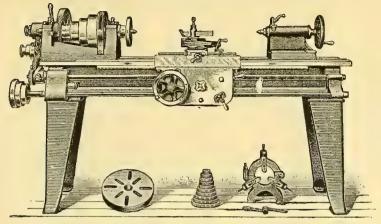


Fig. 1966.

HAS COMPOUND REST AND POWER CROSS FEED.

Head and Feed Gears covered. Compound Rest of entirely new design, fully graduated, quick adjustment, positive grip. Wide Range of Threads that can be cut with the gears furnished, including 11½ pipe thread. Centre Rest has Hardened Steel Jaws. Very heavy and carefully proportioned in all parts. Workmanship unexcelled. Large, Hollow-head Spindle. Wide Bed and Broad, Well-proportioned V's. Carefully Graduated Speeds and Feeds. Belt and Gear Feeds are interchangeable. Locking Device for holding carriage when the cross feed is in use. Lateral and Cross Feeds cannot be engaged at the same time.

DIMENSIONS.

Swing over bed 143 inches.

Swing over plain or compound rest 9 inches.

Diameter of hole in spindle $1\frac{1}{8}$ inches.

Centre hole in spindle Morse Taper No. 3.

Face Plate Screw 2 inches in diameter, 6 threads.

Front bearing $2\frac{1}{8}$ x4 inches.

Back bearing $1\frac{7}{8}x3\frac{3}{4}$ inches.

Four step cone for 2-inch belt.

Diameter of largest step of cone 85 inches.

Diameter of smallest step of cone 33 inches.

Ratio of back gearing 10 to 1.

Diameter of tail spindle $1\frac{3}{4}$ inches.

Cuts threads with English lead screw from 4 to 36.

Cuts threads with metric lead screw from 8 mm. to 1.5 mm.

Distance between centres with 6-ft. bed 42 inches.

Net weight with 6-foot bed 1,468 lbs.

Boxed weight with 6-foot bed 1,720.

Weight for extra foot of bed 75 lbs. net.

Pulleys on the countershaft are 10x3 inches.

Countershaft should make 150 revolutions.

Tools for this lathe should be made of $1x_{\frac{1}{2}}$ -inch steel.

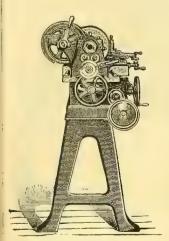


Fig. 1966.

LEVER AND SCREW FEED LATHE, WITH PATENT COUNTERSHAFT.

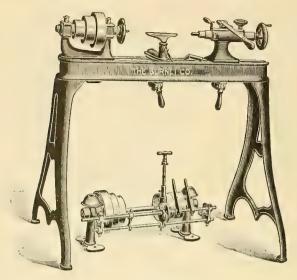


Fig. 1967.

Patented March 31, 1885.

The Lathe shown has 10 inch swing, 4 foot bed, stands 36 inches high. All of these speed Lathes have hollow spindle, bronze or cast iron boxes with check nuts on end of spindle to take up the wear. The boxes are set into the frame of the machine as in the best of modern engine Lathes and have every provision known for adjustment, self oiling and exclusion of dust. These Lathes are furnished with either flat or V-ways, and are made in the most thorough manner possible.

PRICES ON FLOOR LEGS.

Swing.	Bed.	Without Patent Lever Attachment.	With Patent Lever Attachment,	Countershaft, if not wanted.	Extra length of Bed,
40 * 4	4.0.4	with Countershaft	with Countershaft.	deduct.	per foot.
10 inch,		\$75.00	\$87.50	\$15.00	\$5.00
13 "	5 "	95.00	115.00	20.00	7.00
16 "	6 "	125.00	145.00	25.00	10.00
	When	ordered with short or l	bench legs above prices a	re \$10.00 less.	

METAL SAWING MACHINES.

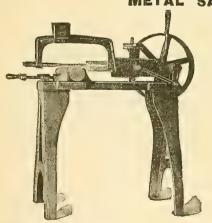


Fig. 1968. Fig. 1968. Fig. 1969.

Capacity 4 inches.

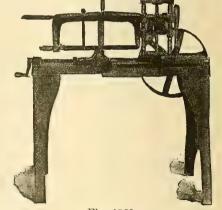
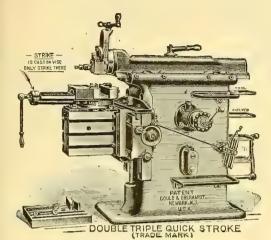


Fig. 1969. Price, \$20.00 '' 25.00

EBERHARDTS' PATENT QUICK RETURN STROKE SHAPERS.

Has Eight Changes of Speed for Every Change of Stroke.

RECULAR SHAPING MACHINE.



PRICES ON REGULAR SHAPER.

4	L PUNE ?.				
	\		en 1		
Stroke, inches.	Width, inches.	Height from Angle, inches.	Takes between Jaws, inches.	Weight about, 1bs.	Price.
16	17	14	10	1900	\$350
20	20	20	12	2200	400
24	25	18	15	3000	450
26	30	$15\frac{1}{2}$	14	4000	600

Cour	TER PUL	LEYS.	Boxed Weight	Cubic	Space Required
Diam. inches.	Face, inches.	Rev. Minu'e.	about lbs.	Feet, about.	about, inches.
12.	$3\frac{1}{4}$	180	2300	70	45×76
12	$3\frac{1}{4}$	180	2800	95	51 x 78
14	$3\frac{1}{4}$	180	3800	110	54×90
. 14	$3\frac{1}{4}$	200	5000	130	54×90

Fig. 1970.

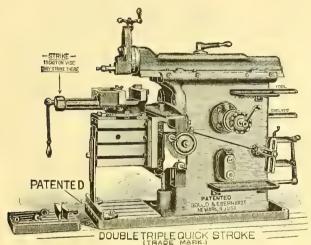


Fig. 1971.

PRICES WITH EXTENSION BASE. Planes.

]	Height	Takes		
		from	bet.	Weight	
Stroke,	Width,	Angle,	Jaws,	about,	Price
in.	in.	in.	in.	lbs.	
16	20	17	10	2300	\$350
20	20	17	12	2500	400
24	25	18	15	3500	450
26	30	15	14	4600	600
28	30	24	16	5600	800
32	36	24	16	7000	1,000

Coun	TER PU	LLEYS.		Floor Space
Diam.	Face,	Rev. Minute.	Boxed Weight about	Required about inches.
12	$3\frac{1}{4}$	200 180	2700 3000	45 x 81 51 x 78
12 14	31 31 31	180	4000	54 x 99
14 14	$\frac{3\frac{1}{4}}{4\frac{1}{4}}$	$\frac{200}{300}$	$\frac{5800}{6600}$	54×101 69×105
16	$4\frac{1}{2}$	300	8500	75×117

PRICES ON SINGLE CEARED SHAPER.

	PLANES.										Floor
_		Stroke,	Takes				NTER PUI		Boxed Weight	Cubic	Space Required
	7777 7 4 %	from	between Jaws,	Weight about.	Price.	Diam.	Face.	Rev.	about.	Feet.	about.
Stroke, inches.	Width, inches.	Angle inches.	inches.	lbs.	11100.	inches.	inches.	Minute.	lbs.	about	inches.
8	14	8	6	900	\$200	8	2	130	1200	40	32×50
12	17	10	8	1200	260	9	3	130	1500	46	36×54
14	17	13	8	1400	275	10	3	130	1700	60	42×56
18	20	15	10	1800	300	12	31	130	2200	80	45×60
10	<i>~</i> ∪	10			furnishe	d of or	-	ional cos	rt.		
			THUE	g rabie	Turmsne	cr arr ar	T addition	ionar cos	0.04		

PATENT SHAPER VISES.

PERFECTED VISE MOULD MAKERS REGULAR RIGH JAW VISE SHAPER VISE STRIKE TS CAST ON VISE ONLY STRIKETHERE ALL HAVE STEEL FACES RAPID VISE BOX VISE

FOR DRILLS SHAPERS & PUANERS

PERFECTED VISE.

For Machine Size, in.	Takes Between Jaws, in.	Width Jaws, in.	Height Jaws, in.	Weight About 1bs.	Trice.
24-26 28 32	15 16 16	$14 \\ 19\frac{1}{2} \\ 19\frac{1}{2}$	$\frac{3}{4^{\frac{1}{2}}}$ $4^{\frac{1}{2}}$	260 500 500	\$70.00 110.00 110.00

These vises are furnished with a pair of centres and a pair of special taper holding jaws also.

RAPID VISE.

Takes Between Jaws, in.	Width Jaws, in.	Height Jaws, in.	Weight About lbs.	Price.
	3	1	21	\$15.00
$\frac{6\frac{3}{4}}{9\frac{1}{4}}$	4	$1\frac{1}{4}$	36	16.75
$11\frac{3}{4}$	5	1 [61	22.25
$9\frac{1}{4}$	4	$rac{1rac{1}{2}}{2}$	42	19.00
$9\frac{1}{3}$	$\bar{8}$	2	150	50.00

REGULAR SHAPER VISE. Takes Width Height Weight For

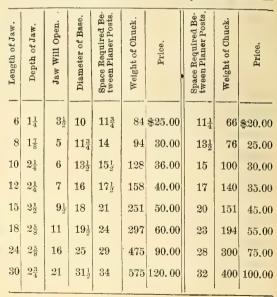
Machine Size, in.	Between Jaws, in.	Jaws, in.	Jaws,	About lbs.	Price.
12	8	9_{4}^{3}	$1\frac{3}{4}$	85	\$35.00
16	10	12	$2\frac{1}{4}$	120	45.00
20	$12\frac{1}{2}$	12	$1\frac{3}{4} \ 2\frac{1}{4} \ 2\frac{1}{4}$	135	50.00
		BOX	VISE.		
For	Takes	BOX Width	VISE. Height	Weight	
Machine	Between	Width Jaws,	Height Jaws,	About	Price.
		Width	Height		Price.
Machine Size,	Between Jaws,	Width Jaws,	Height Jaws,	About	Price.

HIGH JAWED VISE.

For Machine I Size, in.	Takes Between Jaws, in.	Width Jaws, in.	Height Jaws, in.	Weight About lbs.	Price.
16 & 20 24 & 26	14 14	10 14	$\frac{4}{4\frac{1}{2}}$	$\frac{150}{290}$	\$55.00 70.00

JORDAN PLANER CHUCKS.

ROUND BASE. SQUARE BASE.



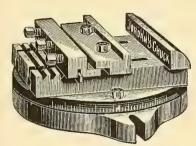


Fig. 1972. ROUND BASE.

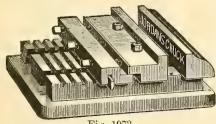


Fig. 1973. SQUARE BASE.

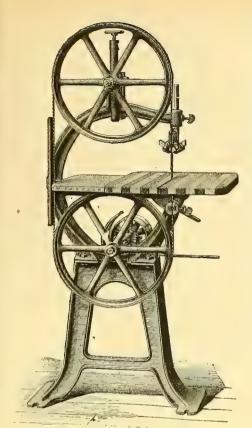


Fig. 1974.

FIG. 1975. 26-IN. BAND SAW.

DIMENSIONS—Diameter of band wheels, 26 inches. Face of band wheels, $1\frac{1}{2}$ inches. Distance clear between saw and frame, 25 inches. Distance clear under guide when raised, 10 inches. Size of table, 20x24 inches. Height of table from floor, 40 inches.

TABLE—The table is made of iron and can be set level or at any angle for bevel sawing.

PULLEYS—Tight and loose, 10 inches diameter for 3-inch belt. Provided with shifter and lever as shown; no countershaft required.

SHIPPING WEIGHT-500 lbs.

SPEED-350 to 450 revolutions per minute. Each machine is supplied with one saw

blade and outfit for brazing saws.

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FIG. 1974. 20-IN. BAND SAW.

pimensions—Height over all, 66 inches. Floor to centre of pulleys, 28½ inches. Floor to top of table, 40 inches. Table to upper saw guide when up, 7 inches. Saw to frame at back of table, 20 inches. Band wheels, 20 inches diameter. Floor space, 24x24 inches. The table, 20x24 inches, can be tilted to any desired angle for bevel sawing—especially desirable for pattern work.

PULLEYS—Tight and loose, 7 inches diameter for 3 inch belt, provided with shifter and lever, as shown; no counter-

shaft required.

saw Blades—We furnish two saws with each machine—\(\frac{1}{4}\) and \(\frac{3}{8}\), No. 22 gauge, 10 feet 1 inch long, set and sharpened ready for use.

SHIPPING WEIGHT-300 lbs.

SPEED-350 to 400 revolutions per min.

SIZE AND PRICE.

20-inch Machine, with tight and loose pulleys \$50.00 Extra Saw Blades, 10 feet 1 in, x \(\frac{1}{2}\) or \(\frac{3}{2}\) in, each 1.50

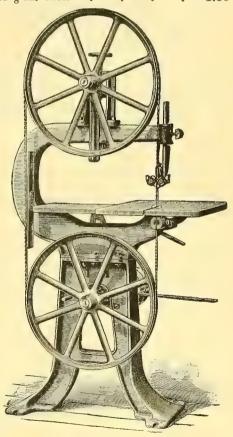


Fig. 1975.

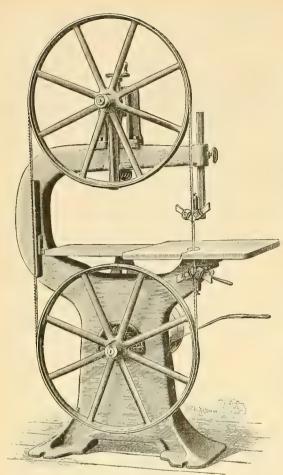


Fig. 1976.

FIG. 1976. 32-INCH BAND SAW.

pimensions—Diameter of band wheels, 32 inches. Face of band wheels, 13 inches. Distance clear between saw and frame, 31 inches. Distance clear under guide when raised, 12 inches. Size of table, 24x28 inches. Height of table from floor, 40 inches.

TABLE-The table is made of iron and can be set level or at any angle for bevel sawing.

pulleys—Tight and loose, 12 inches diameter for 3½-inch belt. Provided with shifter and lever as shown, no countershaft required.

SHIPPING WEIGHT-900 lbs.

speed-350 to 450 revolutions per minute.

Each machine is supplied with one saw blade and outfit for brazing saws.

SIZE AND PRICE.

32-inch Machine, with tight and loose pulleys \$105.00 Extra Saw Blades, 16 ft. 5 in. $x \frac{1}{2}$ in., each 3.00

FIG. 1977. 36-INCH BAND SAW.

pimensions—Diameter of band wheels, 36 inches. Face of band wheels, 2 inches. Distance clear between saw and frame, 35 inches. Distance clear under guide when raised, 15 inches. Size of (tilting) table, 28x32 inches. Material

used for table, iron. Height of table from floor, 40 inches. Diameter of belt pulleys, 12 inches. Width of belt to use 4 inches. Length of saw blades (maximum), 18 feet 6 inches $x \frac{1}{2}$ inch or $\frac{3}{4}$ inch.

THE BAND WHEELS are cast iron, carefully balanced, and covered with endless rubber bands, making a rigid wheel that stays permanently true under all conditions. The Upper Wheel is adjustable in all directions.

THE TABLE tilts to any desired angle up to 45 degrees, for bevel or conical sawing, and is held rigidly at any point by means of an eccentric lever. The guides are made with hard wood surfaces, making injury to saw impossible. Tight and loose pulleys are provided with shifter lever under table where it is in easy reach, or it can be operated with the foot when more convenient to do so.

Each machine is supplied with one saw blade and outfit for brazing saws.

SIZE AND PRICE.

Weight of machine, 1,100 lbs.

Illustration of 36-inch Band Saw sent on application.

SINCLE HEAD BOLT CUTTERS.

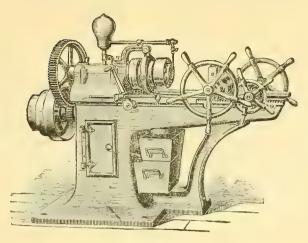


Fig. 1978.

NO. I.

Threads and Taps from $\frac{1}{16}$ to $\frac{3}{4}$ inch, right or left hand thread. Machine complete with open die head, combined hand and automatic opening and closing device, pump, countershaft and wrenches; six sets of case dies, one set each, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ inch; six nut taps of same sizes as dies; and one adjustable tap chuck and stop die. Price

NO. 2.

Threads and Taps from $\frac{1}{4}$ to 1 inch, right or left hand thread. Machine complete with open die head, combined hand and automatic opening and clo-ing device, pump, countershaft and wrenches; seven sets of case dies, one set each $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and 1 inch; seven nut taps of same sizes as dies, and one adjustable tap chuck and stop die. Price

NO. 3.

Threads and Taps from $\frac{3}{8}$ to $1\frac{1}{4}$ inch, right or left hand thread. Machine complete with open die head, combined hand and automatic opening and closing device, pump, countershaft and wrenches; eight sets of case dies, one set each $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, $\frac{1}{18}$ and $1\frac{1}{4}$ inch; eight nut taps of same siz s as dies, and one adjustable tap chuck and stop die. Price

NO. 4.

Threads and Taps from $\frac{3}{8}$ to $1\frac{1}{2}$ incb, right or left hand thread. Machine complete with open die head, combined hand and automatic opening and closing device, pump, countershaft and wrenches; nine sets of case dies, one set each $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$ and $1\frac{1}{2}$ inch; nine nut taps of same sizes as dies, and one adjustable tap chuck and stop die. Price

NO. 5.

Threads and Taps from $\frac{1}{2}$ to 2 inch, right or left hand thread. Machine complete with open die head, combined hand and automatic opening and closing device, pump, countershaft and wrenches; eleven sets of case dies, one set each $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, $\frac{1}{8}$, $1\frac{1}{8}$, and 2 inch; eleven nut taps of same sizes as dies, and one adjustable tap chuck and stop die. Price

DOUBLE HEAD BOLT CUTTERS.

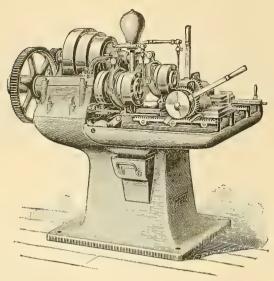


Fig. 1979.

NO. I.

Threads and Taps from $\frac{3}{16}$ to $\frac{3}{4}$ inch, right or left hand thread.

Machine complete with two open die heads, combined hand and automatic opening and closing device, pump, countershaft and wrenches, and 12 sets of case dies, two sets each $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ inch.

NO. 2.

Threads and Taps from $\frac{3}{8}$ to 1 inch, right or left hand thread.

Machine complete with two open die heads, combined hand and automatic opening and closing device, pump, countershaft and wrenches, and 12 sets of case dies, two sets each $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and one set each $\frac{7}{8}$ and 1 inch. Price . . \$

NO. 3.

Threads and Taps from $\frac{3}{8}$ to $1\frac{1}{4}$ inch, right or left hand thread.

Machine complete with two open die heads, combined hand and automatic opening and closing device, pump, countershaft and wrenches, and 13 sets of case dies, two sets each $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, and one set each 1, $1\frac{1}{8}$ and $1\frac{1}{4}$ inch. Price . . \$

NO. 4.

Threads and Taps from \(\frac{1}{2}\) to 1\(\frac{1}{2}\) inch, right or left hand thread.

Machine complete with two open die heads, combined hand and automatic open ing and closing device, pump, countershaft and wrenches, and 14 sets of case dies, two sets each $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 and 1 set each $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$ and $1\frac{1}{2}$ inch. Price . . \$

NO. 5.

Threads and Taps from ½ to 2 inch, right or left hand thread.

Machine complete with two open die heads, combined hand automatic opening and closing device, pump, countershaft and wrenches and 20 sets of case dies, two sets each $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, and one set each $1\frac{3}{4}$ and 2 inch.

Price . . \$

THE FORBES' PATENT DIE STOCKS

FOR HAND POWER.

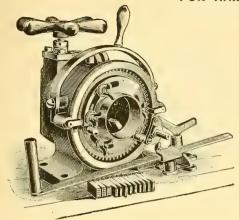
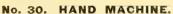


Fig. 1980.



Range, 1 to 2 inch, R. and L.

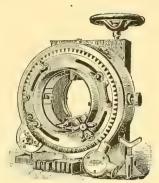


Fig. 1981.

No. 56. HAND MACHINE.

Range, 21 to 6 inch, R. H.

NET PRICE LIST FOR HAND MACHINES.

Number.	Range.	Weight, Net.	Weight, Gross.	Price.
*30	1 to 2 inch, both Right and Left.	138 lbs.	178 lbs.	\$50,00
*32	$\frac{1}{4}$ to 2 inch, for Solid Dies (without dies).	130 "	170 ''	45.00
*34	1 to 3 inch R. H., 1 to 2 inch L. H.	155 ''	195 ''	75.00
*36	$\frac{3}{4}$ to 3 inch, R. H., $\frac{3}{4}$ to 2 inch L. H.	160	200 ''	85.00
*37	$\frac{1}{4}$ to 3 inches, R. and L.	160 ''	200 "	105.00
†46	$\hat{2}_{2}^{1}$ to 4 " R. H.	220	270 ''	85.00
*38	$1\frac{1}{2}$ to 4 " R. H.	222 **	272 ''	100.00
*40	$1\frac{1}{2}$ to 4 "R. and L.	225 ''	275 "	115.00
*42	1 to 4 " R. H.	223 "	273 ''	110.00
*44	1 to 4 " R. and L.	235	285 '	130.00
†50	4 to 6 " R. H.	598 11	376 ''	115.00
†52	$3\frac{1}{2}$ to 6 · · R. H.	298	376 "	130.00
†54	$2\frac{1}{2}$ to 5 " R. H.	300	378 "	150.00
†56	$2\frac{1}{2}$ to 6 " R. H.	303	381 ''	175.00
†62	$2\frac{1}{2}$ to 6 " R. H. (extra heavy).	750	885 "	300.00
*58	1 to 6 " R. H.	330 ''	408 "	190.00
*60	1 to 6 " R. and L.	348 ''	426	235.00
*63	$2\frac{1}{2}$ to 8 " R. and L.	625 ''	750 ''	360.00
†64	$2\frac{1}{5}$ to 8 " R. H.	600	725 "	325.00
+66	$2\frac{1}{2}$ to 10 " R. H.	750 "	880	500.00
*67	$2\frac{7}{2}$ to 10 " R. H.	760 "	890 **	500.00
*68	$2\frac{1}{2}$ to 10 "R. and L.	800 **	950 "	550.00
	* Pressure feed machine. † Lead	d screw machine.		
Nos	. 30 to 37 have no cut-off attachment.			

THE CURTIS NIPPLE HOLDER.

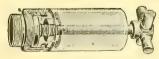


Fig. 1982.

A single revolution of the hand wheel allows the nipple to be unscrewed by the fingers.

Number.	Range.	Weight,	Price.
1	1 inch to 2 inch, R. and L.	35 lbs.	\$14.00
11/2	1 " to 3 " R. and L.	65 ''	18.00
$\frac{1\frac{1}{2}}{2}$	1 " to 4 " R. and L.	150 "	40.00
3	1 " to 6" R. and L.	190 "	60.00

THE FORBES' PATENT DIE STOCK. AS ARRANGED FOR EITHER HAND OR POWER USE.

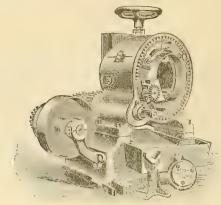


Fig. 1983.

No. 78. HAND OR POWER MACHINE.

Range, 21 to 4 inch, R. H.

The machine is an adaptation of hand machine, already described, for either hand or power use. It consists of the regular hand machine supplied with a power base, elongated pinion, countershaft, etc., and the machine can either be worked as a power machine or taken from the base and carried out on outside work as a hand machine.

We also can furnish a stand when desired for either hand or power machines, to stand on the floor, for which we charge \$10 extra.

NET PRICE LIST FOR HAND OR POWER MACHINES.

Number.	Range.	Weight, Net.	Weight, Gross.	Price.
*70	$\frac{1}{4}$ to 2 inch, R. and L.	320 lbs.	430 lbs.	\$100.00
*72	1 to 2 inch, for Solid Dies (without dies).	315 ''	425 "	95.00
*74	1 to 3 inch R. H., 1 to 2 inch L. H.	340	459 **	125.00
*76	3 to 3 inch, R. H., 3 to 2 inch L. H.	343 "	462 "	135.00
*77	$\frac{1}{4}$ to 3 inches, R. and L.	348 0	467 "	155.00
†78	2½ to 4 " R. H.	515 ''	652 ''	140.00
*80	1½ to 4 " R. H.	516 ''	653 ''	150.00
*82	1½ to 4 R. and L.	517 "	654 ''	165.00
*84	1 to 4 " R. H.	516 "	653	169.00
*86	1 to 4 ' R. and L.	527	664 '	180.00
†88	4 to 6 " R. H.	635	813	170.00
†90	$3\frac{1}{2}$ to 6 " R. H.	640 "	818 ."	180.00
†92	2½ to 5 " R. H.	640 "	818 "	200.00
†94	$2\frac{1}{2}$ to 6 · · R. H.	645 ''	823 "	225.00
*96	1 to 6 R. H. *	665 "	843 "	250.00
*98	1 to 6 " R. and L.	675	853	285.00
*99	2½ to 8 " R. and L.	1130 ''	1215 "	535.00
*100	21 to 8 " R. II.	1108	1193 "	500.00
†102	$2\frac{1}{2}$ to 10 · · · R. II.	1510 "	1600 ''	700.00
*104	$2\frac{1}{2}$ to 10 " R. H.	1520 ''	1600 **	700.00
*106	$2\frac{1}{2}$ to 10 " R. and L.	1560	1650 ''	750.00
	2 Dunggarung food maghana 1 Land			

* Pressure feed machine. + Lead screw machine.

These prices include countershaft, ratchet wrench and pipe rest.

Nos. 70 to 77 have no cut-off attachment.

PRICE LIST OF FINISHED SHAFTING.

CUT TO LENGTH FROM 1 FOOT TO 24 FEET, INCLUSIVE.

Diam- eter.	Weight Per Ft.	Per Lb. Cents.	Diam- eter.	Weight Per Ft.	Per Lb. Cents.	Diam, eter,	Weight Per Ft	Per Lb Cents
16 5 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	.167 .260 .370 .510 .666	10 85	1.5.8.1.0 1.1.3.1.0 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	7.04 7.60 8.16 8.78 9.40		3 9 1 9 1 9 1 9 8 9 3 3 3	24.06 24.58 26.10 27.16	5
(1) 5 (1) 5	.843 1.05 1.25 1.50	6	1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10.00 10.65 11.15 12.07		97 4 5 6 99 97 10 99 99 99 99 99 99 99 99 99 99 99 99 99	28.24 29.40 30.43 31.50 32.64	2 2 4
$\frac{1}{1 \frac{1}{1 \cdot 6}}$	1.76 2.03 2.34 2.64 3.00	51	9 3 6 9 5 9 5 9 5 9 5 1 6 9 5	12.80 13.50 14.00 15.07 15.83	5	90 fc 90 fc	33.84 35.20 36.40 37.45 39.85	51
1 1 3 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3.33 3.74 4.16 4.61 5.05	5.53	21393 213 25811 2110 213	16.68 17.55 18.32 19.31 20.18		$egin{array}{c} 3_{16}^{15} \\ 4 \\ 4_{16}^{1} \\ 4_{16}^{1} \\ 4_{2}^{1} \end{array}$	41.04 42.50 48.26 52.62 54.11	6
13 17 116 12 196	5.50 6.00 6.52	<u> </u>	$\begin{array}{c} \sim 4 \\ 2113 \\ 218 \\ 28 \\ 215 \\ 216 \end{array}$	21.15 22.10 22.96		$4\frac{4}{1}$ $4\frac{1}{1}$ 5	60.88 65.50 67.50	$\begin{cases} 6\frac{1}{2} \\ 7 \end{cases}$

All Shafts larger than 4 inch are turned and polished.

EXTRAS FOR CUTTING LONG AND SHORT LENGTHS.

For Shafts 6 inches to 113 inches long, 3c. per lb. net extra.

For Shafts 3 inches to 5\(^3\) inches long, 1c. per lb. net extra.

For Shafts shorter than 3 inches, special price quoted upon application.

For Shafts over 24 feet and less than 30 feet, $\frac{1}{2}$ c. per lb. net extra.

For Shafts 30 feet and less than 35, 1c. per lb. net extra.

For Shafts 35 feet and longer, special price quoted upon application.

LARGE TURNED SHAFTS.

We are prepared to furnish Turned Shafting all sizes up to 37 feet in length. Prices quoted upon application.

KEYSEATING OF SHAFTING.

Location of pulley and other special keyscats should be plainly shown by sketch, and orders should designate which Shafts are to be keyseated upon both ends for couplings and which upon one end only.

DIMENSIONS OF STANDARD KEYSEATS.

Liam. of Shaft. Inches.	Width, Inches.	Depth Inches.	I iam. of Shaft. Inches.	Width. Inches.	Depth. Inches.	Diam, of Shaft, Inches,	Width.	Depth. Inches.
$\begin{array}{c} 1_{6}^{5} \text{ to } 1_{8}^{1} \\ 1_{16}^{3} \text{ to } 1_{10}^{5} \\ 1_{8}^{3} \text{ to } 1_{10}^{13} \\ 1_{8}^{2} \text{ to } 2_{10}^{13} \\ 2_{8}^{5} \text{ to } 2_{10}^{13} \\ 2_{7}^{2} \text{ to } 3_{10}^{5} \end{array}$	38	18 52 36 14 5 6 15 8	$3\frac{3}{8}$ to $3\frac{1}{13}$ $3\frac{7}{8}$ to $5\frac{3}{13}$ $5\frac{1}{4}$ to $6\frac{7}{13}$ $6\frac{1}{2}$ to $7\frac{1}{13}$ $7\frac{3}{4}$ to $8\frac{1}{13}$	1 1½ 1¼ 1¾ 1%	766 122 9 146 55 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 9 \text{to } 10_{16}^{9} \\ 10_{14}^{2} \text{ to } 11_{16}^{76} \\ 11_{12}^{2} \text{ to } 12_{16}^{16} \\ 12_{16}^{3} \text{ to } 13_{16}^{16} \\ 14 \text{to } 14_{16}^{15} \end{array}$	1558 174 75 2	3 4 13 16 7 8 15 16
~8 10 01 C	-1	3		502				

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COMPRESSED COUPLING. KEYSEATED AND FURNISHED WITH KEY.

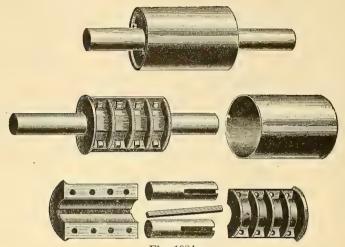


Fig. 1984.

STRONG, SIMPLE AND RELIABLE.

These Couplings can be very easily and quickly applied to shafts or removed therefrom, and are shipped fitted ready for use.

101	政府	E D	10	0	NC

	DIMENSIONS.										
Number	Diameter	Diameter	Length	Length							
of	of	of	of	of	Be						
Coupling.	Shaft.	Coupling.	Coupling.	Key.	No.	Size.					
1	$\frac{15}{16}$ to $1\frac{1}{8}$	$4\frac{3}{8}$	$5\frac{1}{8}$	$4\frac{1}{2}$	4	1/2					
2	$1_{\overline{16}}^{8}$ to $1_{\overline{16}}^{5}$	$4\frac{5}{8}$	$5\frac{7}{8}$	$5\frac{1}{4}$	4	$\frac{1}{2}$					
3	$1\frac{3}{8}$ to $1\frac{9}{16}$	$5\frac{3}{8}$	71/8	$6\frac{1}{4}$	4	$\frac{1}{2}$					
4	$1\frac{5}{8}$ to $1\frac{13}{16}$	$5\frac{7}{8}$	8	73	4	3					
5	$1\frac{7}{8}$ to $2\frac{1}{16}$	6	$8\frac{3}{8}$	$7\frac{1}{2}$	4	<u>5</u> 8					
6	$2\frac{1}{8}$ to $2\frac{5}{16}$	6	95	9	8	$\frac{1}{2}$					
7	$2\frac{3}{8}$ to $2\frac{9}{16}$	7	$10\frac{1}{4}$	$9\frac{1}{2}$	8	$\frac{1}{2}$					
8	$2\frac{5}{8}$ to $2\frac{13}{16}$	$7\frac{3}{8}$	$11\frac{7}{8}$	11	8	5/8					
9	$2\frac{7}{8}$ to $3\frac{1}{16}$	8	$12\frac{1}{2}$	$11\frac{3}{8}$	8 .	5					
10	3½ to 3,5	8 7	$12\frac{7}{8}$	12	8	$\frac{3}{4}$					
11	$3\frac{3}{8}$ to $3\frac{9}{16}$	9	$12\frac{7}{8}$	12	8	34					
12	$3\frac{5}{8}$ to $3\frac{1}{16}^{3}$	$9\frac{1}{2}$	$13\frac{3}{4}$	$13\frac{1}{4}$	8	$\frac{3}{4}$					
13	$3^7_{ m S}$ to $4^1_{ m I ar G}$	$9\frac{1}{2}$	15	14	8	34					
14	$4\frac{1}{8}$ to $4\frac{5}{16}$	11	16	$15\frac{1}{4}$	8	3.4					
15	$4\frac{3}{8}$ to $4\frac{9}{16}$	11 k	$16\frac{7}{8}$	16	8	78					
16	$4\frac{5}{8}$ to $4\frac{13}{16}$	$13\frac{1}{4}$	17^{3}_{4}	17	8	7 8					
17	$4\frac{7}{8}$ to $5\frac{1}{16}$	$13\frac{3}{4}$	18_{4}^{3}	18	8	ৰ্কাৰ কোন আন্ত কাল কাল কাল আনত আনত আনুক জাক জাক জাক আনুক লোক দোতে দোতে					

PRICE LIST.

Diameter of Shaft.	Price.	Diameter of Shaft.	Price.	Diameter of Shaft.	Price.
1 5 1 6	\$5.00	$2\frac{7}{16}$	\$10.75	$4\frac{7}{16}$	\$42.00
$1\frac{3}{16}$	5.50	$2\frac{11}{16}$	13.00	$4\frac{15}{16}$	53.00
1 5	5.70	2_{16}^{15}	16.50	5^{7}_{18}	65.00
1 7	6.00	$3\frac{3}{16}$	20.00	$5\frac{1}{1}\frac{5}{6}$	78.00
$1\frac{1}{1}\frac{1}{6}$	7.00	$3\frac{7}{1 \text{ G}}$	24.00	$6\frac{7}{16}$	90.00
1 រុ ថ្ង	8.00	$3\frac{1}{1}\frac{1}{6}$	28.00	$6\frac{1}{1}\frac{5}{6}$	112.00
$2\frac{s}{14}$	9.00	315	32.00		

FLANCE-FACED OR PLATE COUPLING. TURNED ALL OVER; KEYSEATED AND FURNISHED WITH KEYS AND BOLTS.

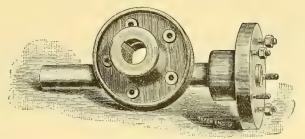


Fig. 1985.

DIMENSIONS.

No. of	Diameter of	Length	Diameter of	No. of	Diameter of	Length	Diameter
Coupling.	Shafts.	Coupling.	Flanges.	Coupling.	Shafts.	Coupling.	of Flanges.
1	$rac{7}{8}$ to $1rac{1}{16}$	4	$5\frac{1}{8}$	16	45 to 413	$15\frac{3}{4}$	$14\frac{1}{2}$
2	$1\frac{1}{8}$ to $1\frac{5}{16}$	5	$6\frac{1}{8}$	17	$4\frac{7}{8}$ to $5\frac{1}{16}$	$16\frac{1}{2}$	$14\frac{7}{8}$
3	18 to 19	6	$7\frac{1}{8}$	18	$5\frac{1}{8}$ to $5\frac{5}{16}$	$17\frac{1}{4}$	16
4	$1\frac{5}{8}$ to $1\frac{1}{1}\frac{3}{6}$	$6\frac{3}{4}$	85	19	$5\frac{3}{8}$ to $5\frac{9}{16}$	18	$16\frac{3}{8}$
5	1_8^7 to 2_{16}^{-1}	$7\frac{1}{2}$	9	20	55 to 513	18^{3}_{4}	$16\frac{3}{4}$
6	$2\frac{1}{8}$ to $2\frac{5}{16}$	81	$9\frac{3}{8}$	21	$5\frac{7}{8}$ to $6\frac{1}{16}$	$19\frac{1}{2}$	171
7	$2\frac{3}{8}$ to $2\frac{9}{16}$	9	9_{4}^{3}	22	$6\frac{1}{8}$ to $6\frac{5}{16}$	$20\frac{1}{4}$	$17\frac{7}{8}$
8	$2\frac{5}{8}$ to $2\frac{1}{1}\frac{3}{6}$	9_{4}^{3}	10 5	23	$6\frac{3}{8}$ to $6\frac{9}{16}$	21	$18\frac{1}{4}$
9	$2\frac{7}{8}$ to $3\frac{1}{16}$	$10\frac{1}{2}$	11	24	$6\frac{5}{8}$ to $6\frac{13}{16}$	$21\frac{3}{4}$	$18\frac{5}{3}$
10	31 to 35	$11\frac{1}{4}$	$11\frac{7}{8}$	25	$6\frac{7}{8}$ to $7\frac{1}{16}$	223	19
11	$3\frac{3}{8}$ to $3\frac{9}{18}$	12	$12\frac{1}{4}$	26	7½ to 7 <u>5</u>	$23\frac{1}{4}$	$19\frac{3}{8}$
12	35 to 313	$12\frac{3}{4}$	125	27	$7\frac{3}{8}$ to $7\frac{9}{10}$	24	$19\frac{3}{4}$
13	$3\frac{7}{8}$ to $4\frac{1}{16}$	$13\frac{1}{2}$	13	28	75 to 713	24^{3}_{4}	$20\frac{1}{8}$
14	$4\frac{1}{8}$ to $4\frac{5}{16}$	$14\frac{1}{4}$	$13\frac{3}{4}$	29	$7\frac{7}{8}$ to $8\frac{1}{16}$	$25\frac{1}{2}$	$20\frac{1}{2}$
15	$4\frac{3}{8}$ to $4\frac{9}{16}$	15	141	30	8½ to 8½	$26\frac{1}{4}$	$20\frac{7}{8}$

PRICE PER PAIR.

Diameter of	Fitted to Shafts,	Not Fitted to Shafts.	Diameter of	Fitted to	Not Fi ted
Shaft.			Shaft.	Shafts.	Shafts.
$1_{\bar{1}\bar{6}}^3$	\$7.00	\$4.00	$4\frac{7}{6}$	\$43.25	\$34.25
1 7 6	8.00	5.00	$4\frac{1}{1}\frac{5}{6}$	54.75	44.25
111	8.50	5.50	$5\frac{7}{18}$	67.00	53.50
115	9.00	6.00	$5\frac{1}{1}\frac{5}{6}$	81.00	64.00
$2\frac{3}{16}$	10.50	7.00	$6\frac{7}{16}$	95.50	78.50
2,7	. 12.50	8.50	$6\frac{1}{1}\frac{5}{6}$	110.00	92.00
$2\frac{1}{16}$	15.25	10.75	$7\frac{7}{16}$	126.00	107.50
215	18.25	13.25	715	142.00	123.00
$3\frac{3}{16}$	21.75	15.25	$8\frac{7}{16}$	160.00	140.50
37	25.25	18.25	815	180.00	160.00
311	29.25	21.25	$9\frac{7}{16}$	200.00	80.00
315	33.25	24.75			

REDUCTION FLANCED-FACED COUPLINGS.

When shafts of different diameters are connected with couplings of this kind, price of the pair will be the same as if both shafts were of the larger diameter.

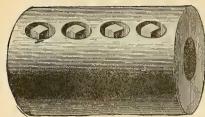


Fig. 1986.

SLEEVE COUPLING.

Diameter Price	of	Shaft	۰		3 ₹3.00	1 3.75	1,3 4,40
11100	•	·	·		" -		
Diameter	of	Shaft		٥	1 176	$1\frac{1}{1}\frac{1}{6}$	115
Price			•	_	\$5.00	5.60	6.25

SAFETY SET COLLARS.

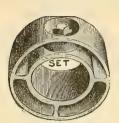


Fig. 1987. Solid Collar.

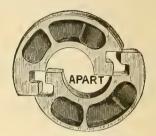


Fig. 1988. Split Collar.

Diameter of Shaft Fig. 1987—Price Fig. 1988—Price		\$0.70	.80	.90	1.00	1.20	1.40	1.60	$2\frac{7}{16}$ 1.80 2.70	2.10	2^{15}_{16} 2.40 3.60
Diameter of Shaft Fig. 1987—Price Fig. 1988—Price		\$2.70	3.00	3.30	3.60	4.70	5.90	7.20	8.60	10.10	12.70

TICHT AND LOOSE PULLEYS.

Fig. 1989.

ADDITIONAL PRICES

To be added to list price per pair (given on pages 600 601-602) for Patent Steel Rim or Cast Iron

TIGHT AND LOOSE PULLEYS.

Diameter in Inches.	Price.	Diameter in Inches.	Price.
3 to 8	\$1.60	25 to 26	\$4.75
81 to 10	1.95	27 to 28	5.10
$10\frac{1}{2}$ to 12	2.30	29 to 30	5.45
$12\frac{1}{2}$ to 14	2.65	31 to 32	5.80
$14\frac{1}{2}$ to 16	3.00	33 to 34	6.15
$16\frac{1}{2}$ to 18	3.30	35 to 36	6.50
19 to 20	3.70	37 to 40	7.20
21 to 22	4.05	41 to 44	7.90
23 to 24	4.40	45 to 48	8.60

Pulleys designed to drive Tight and Loose Pulleys should be made with flat faces, but Pulleys that are to carry non-shifting belts should be made with crowning faces. When no style of face is specified we usually fill orders with crowning faced Pulleys. Tight and Loose Pulleys are always made with crowning faces.

SPLIT PULLEY.

NOTE TABLE BELOW FOR ADDITIONAL PRICES

To be added to list prices
(given on pages 600, 601 and
602) for

FINISHED SPLIT PULLEYS. PATENT STEEL RIM OR

CAST IRON.

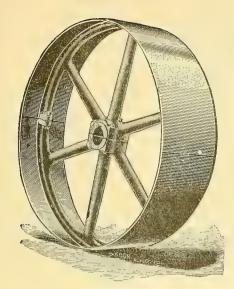
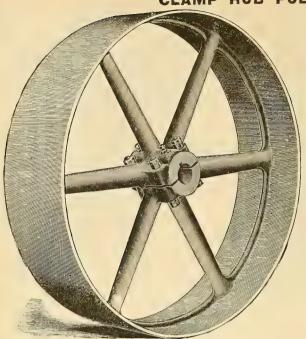


Fig. 1990.

			1		
Diam.	Face	.1	Diam.	Face	
in Inches.	in Inches.	Price.	in Inches.	in Inches.	Price.
	Up to 3	\$1.30	31 to 36	above 20 to 36	\$19.00
6 to 10	above 3 to 6	1.75			6 50
	6 to 10	2.15	37 to 47	Up to 4 above 4 to 6	7.50
	" 10 to 14	3,10		" 6 to 10	9.90
	• • • • • • • • • • • • • • • • • • • •			" 10 to 14	13.50
$10\frac{1}{2}$ to 18	Up to 3	1.50		" 14 to 20	18.00
-	above 3 to 6	2 20		" ×0 to 30	27.00
	" 6 to 10	2.85		" 30 to 40	37.00
	" 10 to 14 " 14 to 18	4.00		The to C	10.00
	" 14 to 18	5.25	48 to 60	Up to 6 above 6 to 10	13.00
19 to 23	Up to 4	2.65		" 10 to 14	18 00
10 10 20	above 4 to 6	3.40		" 14 to 20	25.00
	" 6 to 10	4.05		" 20 to 30	34 50
	" 10 to 14	5.60		" 30 to 40	48.00
	" 14 to 20	7 30		" 40 to 50	63.00
	" 20 to 26	11.00		20	
	TIn to 4	3.60	61 to 84	Up to 10 above 10 to 14	20.00 26.00
24 to 30	Up to 4 above 4 to 6	4.40		" 14 to 20	35.00
	" 6 to 10	5,40		" 20 to 30	48.00
	" 10 to 14	7.25		" 30 to 40	64 00
•	" 14 to 20	10.00		" 40 to 50	82,00
	" 20 to 30	14.00	021. 100	Up to 14	38 00
		4 50	85 to 120	above 14 to 20	53.50
31 to 36	Up to 4	4 50		" 20 to 30	70,00
	above 4 to 6	5 60		" 30 to 40	90.00
	" 6 to 10	6.75		" 40 to 50	115.00
	" 10 to 14 " 14 to 20	9.80 13.00		" 50 to 60	150.00
	" 14 to 20	15.00	11	00 00	

CLAMP HUB PULLEY.



NOTE TABLE BELOW FOR ADDITIONAL PRICES

To be added to regular list prices (given on pages 600, 601 and 602) in order to obtain list prices for

CLAMP HUB PULLEYS. PATENT STEEL RIM OR

CAST IRON.

The state of the s	Fig. 1991.				
Diam.	Face		Diam.	Face	
in Inches.	in Inches.	Price.	in Inches.	in Inches.	Price.
6 to 10	Up to 3	\$0.80	31 to 36	above 20 to 36	\$11.40
	above 3 to 6	1.05	37 to 47	Up to 4	3.90
	" 6 to 10	1.30	37 10 47	above 4 to 6	4.50
	" 10 to 14	1.85		" 6 to 10	5,95
10½ to 18	Up to 3	.90		" 10 to 14	8.10
102 00 10	above 3 to 6	1 30		" 14 to 20	10.80
	" 6 to 10	1.70		" 20 to 30	16.20
	" 10 to 14	2.40		" 30 to 40	22.20
	" 14 to 18	3.15	48 to 60	Up to 6	6.00
101 00	TT /		10 00	above 6 to 10	7.80
19 to 23	Up to 4	1.60		" 10 to 14	10.80
	above 4 to 6	2.05		" 14 to 20	15.00
	" 6 to 10 " 10 to 14	2.45		" 20 to 30	20.70
	" 14 to 20	$\frac{3.35}{4.40}$		" 30 to 40	28.80
	" 20 to 26	6,60		" 40 to 50	39.00
			61 to 84	Up to 10	12.00
24 to 30	Up to 4	2.15	01 00 01	above 10 to 14	15.60
	above 4 to 6	2.65		" 14 to 20	21.00
	" 6 to 10	3.25		" 20 to 30	28.80
	" 10 to 14	4.35		" 30 to 40	38.40
	" 14 to 20	6.00		" 40 to 50	50.00
	" 20 to 30	8.40	85 to 120	Up to 14	22.80
31 to 36	Up to 4	2.70		above 14 to 20	32.10
	above 4 to 6	3.35		" 20 to 30	42.00
	" 6 to 10	4.05		" 30 to 40	54.00
	" 10 to 14	5,90		" 40 to 50	69.00
	" 14 to 20	7.80		" 50 to 60	88.00

PATENT STEEL RIM PULLEY WITH DOUBLE ARM. For Prices see Pages 601 and 602.

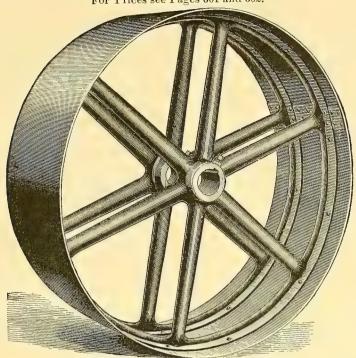


Fig. 1992.

CAST IRON DOUBLE ARM SPLIT PULLEY. For Prices see Pages 597, 601, 602.

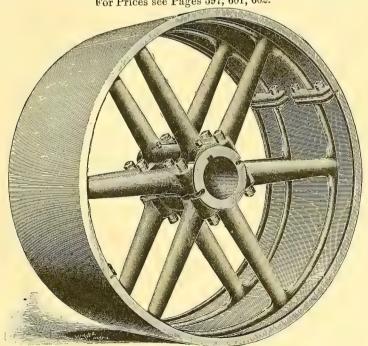


Fig. 1993. 599

ΟF

MACHINE MOLDED CAST-IRON PULLEYS

AND

PATENT STEEL RIM PULLEYS.

									1		1				
Diam.	Face.	Single Belt,	Double Belt.	Diam	Face.	Single Belt.	Double Belt.	Dian.	Face.	Single Belt.	Double Belt.	Diam.	Face.	Single Belt.	Double Belt.
3	2 3 4 5 6	\$1.40 1.55 1.70 1.85 2.00		6	8 9 10 11 12	\$3.05 3.30 3.60 3.90 4.20	\$4.15 4.50 4.85 5.25 5.65	85	7 8 9 10 11	\$3.35 3.65 3.95 4.30 4.65	\$4.50 4.95 5.40 5.90 6.40	12	11 12 13 14 3	\$3.25	\$8.15 8.75 9.40 10.10 4.20
9 <u>1</u> 02	2 3 4 5 6 7	1.45 1.60 1.75 1.90 2.05 2.20		$6\frac{1}{2}$	3 4 5 6 7 8	2.05 2.20 2.40 2.65 2.90 3.15	2.65 2.90 3.25 3.70 3.95 4.35	9	12 13 14 3 4 5	5.00 5.35 5.75 2.40 2.60 2.85	6.85 7.40 8.05 3.15 3.45 3.80	14	4 5 6 7 8 9	3.55 3.90 4.35 4.70 5.20 5.60	4.20 4.70 5.30 5.95 6.55 7.20 7.90
4	2 3 4 5 6	1.50 1.65 1.80 1.95 2.10	,	7	9 10 11 12 3	3.45 3.75 4.05 4.35	4.70 5.05 5.50 5.90 2.75		6 7 8 9 10 11	3.15 3.45	4.25 4.65 5.10 5.60 6.10 6.60	16	10 11 12 13 14	6.10	8.60 9.30 10.00 10.80 11.60 5.30
42	7 8 2 3 4 5	2.25 2.40 1.50 1.70 1.90 2.10			4 5 6 7 8 9	2.25 2.50 2.75 3.00 3.25 3.55 3.85	3.00 3.35 3.70 4.05 4.45 4.85	91	12 13 14 3	2.50 2.70	7.10 7.70 8.30 3.25 3.60	10	6 8 9 10 11 12	4.90 5.85 6.30 6.85 7.40 8.00	6.70 8.20 9.00 9.90 10.60 11.45
1.3	6 7 8 9	2.10 2.30 2.40 2.60 2.80		71	10 11 12 3 4 5	2.20 2.35 2.60	5.25 5.70 6.10 2.85 3.10 3.45		5 6 7 8 9 10	2.95 3.30 3.60	5.30 5.80 6.30	18	4 5 6 7 8	4.45 4.95 5.50 6.05 6.60	5.95 6.75 7.60 8.45 9.30
ı)	3 4 5 6 7 8 9	1.75 1.95 2.15 2.35 2.55 2.75 2.95			6 7 8 9 10 11 12	2.85 3.10 3.35 3.70 4.00 4.35 4.65	3.85 4.20 4.60 5.05 5.50 5.95 6.35	10	12 13 14 3 4 5	2.55 2.75 3.05	6.80 7.35 7.95 8.55 3.35 3.70 4.10		9 10 11 12 13 14 15 16	7.15 7.75 8.40 9 10	10.20 11.10 12.05 13.05 14.05 15.10 16.15 17.20
$\tilde{5}_{2}^{1}$	2 3 4 5 6 7 8	3.15 1.60 1.80 2.00 2.20 2.40 2.60 2.80		8	3 4 5 6 7 8 9	2.25 2.45 2.70 2.95 3.20 3.45 3.80	2.95 3.20 3.55 3.95 4.35 4.75 5.20		6 7 8 9 10 11 12 13	3.40 3.70	4.55 5.00 5.50 6.00 6.55 7.10 7.65 8.25	20	17 18 6 7 8 9	6.20 6 85 7.50 8.15 8.85	18.30 19.40 8.60 9.60 10.60 11.70 12.80
6	9 10 11 3 4	3.00 3.29 3.49 1.95 2.10		81/3	10 11 12 13 14	4.15 4.50 4.80 5.20 5.60	7.75	13	14 3 4 5 6 7	2.85 3.15 3.50 3.85 4.20	4.20		11 12 13 14 15 16 17	9.60 10.40 11.40 12.40	13.90 15.00 16.20 17.40 18.60 19.80 21.10
	5 6 7	2.30 2.55 2.80	$\begin{vmatrix} 3.10 \\ 3.45 \end{vmatrix}$	2	4 5 6	2.55 2.80 3.05	3.35 3.70		8 9 10	4.55			18 19 20		$ \begin{array}{c c} 21.10 \\ 22.40 \\ 23.70 \\ 25.00 \end{array} $

PRICE LIST OF PULLEYS-Continued.

	_						_							
Diam.	Face.	Single Belt.	Double Belt.	Double Arm, Double Belt.	Diam.	Елсе,	Single Belt.	Double Belt.	Double Arm, Double Belt,	Diam.	Face	Single Belt.	Double Belt,	Double Arm, Double Belt.
22	8 10 12 14 16 18 20 22 24 26 4 6 8 10	\$8.40 9.95 11.70 14.05 6.10 7.65 9.30 11.10		\$32.55 36.25 40.00 43.85	30	3 4 5 6 8 10 12 14 16 18 22 24 26 28 30	\$7.60 8.55 9.45 10.55 13.00 15.75 18.60 21.55	\$9.60 11.10 12.70 14.55 18.00 21.60 25.50 29.70 34.20 38.70 43.25	#19.75 54.95 60.25 65.45 70.70	36	8 10 12 14 16 18 20 22 24 26 28 30 34 36	\$17.35 20.85 24.50 28.10	\$23,10 28,30 38,10 38,55 44,05 55,05 61,55 67,05	\$64.30 69.45 75.70 82.00 88.45 94.95 108.25 115.00
26	12 14 16 18 20 22 24 26 28 30 3 4 4 5 6 8 10 12 11 11 11 11 11 11 11 11 11 11 11 11	6.00 6.90 7.65 8.60 10.55 12.60 17.65	7.80 9.15 10.45 11.90 24.55 28.10 31.70	36.45 40.70 45.00 49.10 53.60 58.35	32	3 4 4 5 6 6 7 8 10 12 14 16 18 20 22 24 26 28 30 32	8.45 9.40 10.45 11.65 12.95 14.40 17.40 20.55 23.70	10.45 12.20 14.10 16.05 17.90 19.85 23.85 28.00 32.65 37.45 42.80 47.15	76.00 54.50 59.80 65.35 70.90 76.65 82.40 88.15	40	4 5 6 8 10 12 14 16 13 22 24 26 28 34 36 38 40	13,70 15,30 17,100 20,80 24,75 28,80 32,90	17.75 20.30 22.90 28.10 33.30 38.75 44.80 57.50 63.70 69.70 75.90	73.25 80.15 87.30 94.55 101.90 109.10 116.60 124.00 181.35 138.80 146.20
28	20 22 24 26 28 28 3 4 5 6 8 10 112 14 16 18 20 22 24 24 26 28 30 20 20 20 20 20 20 20 20 20 20 20 20 20	6.75 7.70 8.50 9.50 11.70 13.10 16.85 19.55	\$5.55 \$.8.70 10.10 11.55 13.15 16.40 19.80 23.30 27.10 31.10 35.25 39.45	40.85 45.40 50.00 54.60 59.25 45.35 50.30 55.10 60.00 65.00 70.05	34	3 4 4 5 6 7 8 10 112 144 166 18 20 22 24 26 28 30 32 4 5 6	9, 10 10 40 11,50 12,90 14,35 15,85 19,10 22,50 25,90 10,40 11,40 12,65 14,10	11.60 13.50 15.50 17.60 19.70 26.10 30.50 35.60 40.70 51.65 12.75 14.75 16.95 19.20	59.40 64.60 70.50 76.45 82.55 88.70 94.90	44	4 5 6 8 10 12 14 15 16 18 20 22 24 26 28 30 32 32 40 36 38 40	16.25 18.20 20.25 24.45 28.80 33.40 37.90	21.00 23.90 26.85 32.70 38.65 44.90 51.60 55.05 58.50 65.50 72.50 79.50 86.65	83.45 91.40 99.65 115.10 119.75 124.45 132.20 141.10 149.40 157.80 166.15

PRICE LIST OF PULLEYS-Continued.

=														
Diam.	Face.	Single Belt.	Double Belt.	Double Arm, Double Belt.	Diam.	Face.	Single Belt.	Double Belt.	Double Arm, Double Belt.	Diam.	Face.	Single Belt.	Double Belt.	Double Arm, Double Belt.
48	4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40	\$19.00 23.50 28.25 33.15 38.20 43.30	\$24.50 31.00 37.65 44.45 51.50 59.00 66.70 74.50 82.30 90.10 98.00	\$94.65 103.60 112.70 121.90 121.95 140.65 150.05 159.50 168.95 178.35 187.80	72	8 10 12 14 16 18 20 22 24 26 28 30 36 44 44 48	93.70 104.00	\$54.10 62.75 72.00 82.55 92.55 103.50 114.45 136.50 147.65 122.75 136.50 150.60 165.00	\$131.60 144.25 157.00 169.80 182.60 195.40 233.80 259.40 285.25 311.45	96	20 24 26 28 30 36 40 10 12 14 16 18 20 22 24 28 30 36 48		\$233.00 276.00 297.00 318.00 339.50 165 35 187.00 209.50 232.50 256.00 280.20 304.55 329.00 377.80 402.35	341.55 365.70 390.45 464.15 513.15 322.25 350.25 378.35
30	6 8 10 12 14 16 18 20 22 24 26 30 36	25.30 30.25 33.45 40.80 46.20 52.00	33.30 40.30 47.45 54.80 62.70 70.85 79.15 87.40 95.70 104.10	100.50 110.50 119.90 129.50 149.40 179.50		24 25 26 28 30 32 34 36 38 40 42 44 46 48		165.00 179.50 186.6 193.85 208.20 222.60	189.75 207.40 215.15 222.90 239.45 256.00 272.55 289.10 805.65 322.25 338.80 355.35 371.90 388.45 405.00	112	14 16 20 24 30 36 12 14 16 18 20 24		222.10 245.80 295.40 347.00 424.30 502.20 210.30 258.85 284.00 310.60 364.80	339.75 399.05 487.90 577.55
54	5 6 8 10 12 144 16 18 20 22 4 26 28 30 32 44 44 44 44	26.20 28 90 34.40 40.05 46.00 52.20 58.70	33.95 37.90 45.70 53.60 61.50 70.25 88.50 97.70 107.00 116.50 126.00	112.35 123.05 133.95 144.90 155.95 167.10 178.25 189.40 200.65 211.95 224.35 237.50 250.65	84	8 10 12 14 16 18 20 22 24 26 28 30 34 36 38 40	73.65 84.65 96.00 108.35 121.00 134.00	93.25 107.85 123.00 139.60 173.50 190.75 208.10 225.50 243.05 278.36 	219 35 239 30 259 30 279 50 299 75 320 05 360 75 381 10 402 65 423 60	120	26 28 30 34 40 42 48 14 16 18 20 24 26 28 30 32 34 40 40 40 40 40 40 40 40 40 40 40 40 40		391.80 418.85 446.05 500.50 527.70 246.10 271.75 298.00 325.90 382.50 410.80 4496.00 524.40 552.80	450.85 481 70 512.95 575.70 606.90 669.45 700.75 795.00 374.80 439.90 473.40 505.10 537.75 570.40 603.10 635.70 701.00 733.65 831.90
60	6	34 80	46.00			16 18		191.75 212.50	* * *		50 60			864.75 1029.75

THE DODGE WOOD SPLIT PULLEY.

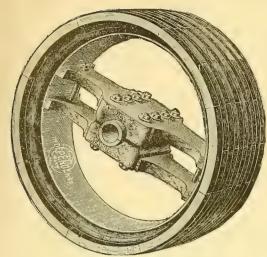


Fig. 1994.

For Price List, see Page 604.

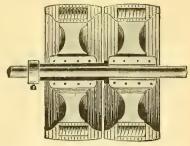


Fig. 1995.

TIGHT AND LOOSE PULLEYS.

The Loose Pulley is furnished with an Iron Sleeve, accurately bored and fitted with oil chambers, or any style of grease or oil cups desired.

PRICE LIST OF EXTRA BUSHINGS.

		utsi met	de erin		Outside Diameter in		Outside Diameter in		Outside Diameter in		Outside Diameter i	n
Leugth.	1	nch	es.	Price.	Inches	Price.	Inches.	Price.	Inches.	Price.	Inches.	Price
6	2 a	nd	2^{7}_{16}	\$0.30	3	\$0.30	$3\frac{1}{2}$	\$0.30	4	\$0.36	$4\frac{1}{2}$	\$0.42
8	2	6.6	2_{1}^{7}	.40	3	.40	$3\frac{1}{2}$.49	4	.48	$4\frac{1}{2}$.56
10	2	4.4	2_{15}^{7}	.50	3	.50	$3_2^{\scriptscriptstyle 1}$.50	4	.60	$4\frac{1}{2}$.70
12	2	4.4	$2_{\frac{7}{16}}$.60	3	.60	$3\frac{1}{2}$.60	4	.72	$4\frac{1}{2}$.84
14	2	6.6	$2\frac{7}{16}$.70	3	.70	3^{2}_{1} .	.70	4	.84	$4\frac{1}{2}$.98
16	2	4.4	2_{16}^{7}	.80	3	.80	3_{2}^{1}	.80	4	.96	$4\frac{1}{2}$	1.12
18	2	6.6	2_{16}^{7}	.90	3	.90	31	.90	4	1.08	$4\frac{1}{2}$	1.26
20	2	6.6	2,7	1.00	3	1.00	3^{5}_{1}	1.00	4	1.20	$4\frac{1}{2}$	1.40

Subject to same discount as pulleys. Net prices will be quoted on application for bushings of larger dimensions.

One bushing is furnished for each standard bored pulley, without extra charge.

TIGHT AND LOOSE PULLEYS.

Fig. 1995.

No extra charge will be made for the pulleys, but loose iron sleeves will be charged as per list below, same being subject to same discount as pulleys with which they are sold. For price list, see page 604.

Face of Pulley			Face of Pulley		
in Inches.	Bore.	Price.	in Inches.	Bore.	Price
3	$1\frac{3}{16}$	\$1.85	5	115 16	\$3.20
3	$1_{\frac{7}{16}}^{7}$	2.00	5	$2\frac{3}{16}$	3.50
3	111	2.20	6	1_{15}^{7}	3.00
3	1 1 5	2.35	6	$1\frac{1}{16}$	3.35
4	$1_{\frac{3}{16}}$	2.20	6	$1\frac{1}{1}\frac{5}{6}$	3.70
, 4	1_{16}^{7}	2.35	6	$2\frac{3}{16}$	4.15
4	$1\frac{1}{16}$	2.50	8	$1_{1}^{7}_{6}$	3.85
4	115	2.70	8	111	4.15
5	$1\frac{3}{16}$	2.50	8	115	4.70
5	1_{1}^{7} 6	2.70	8	$2z^3$	5.35
5	$1\frac{1}{16}$	2.85			

PRICE LIST.

DIAMETER IN INCHES.		_
######################################		
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0 8 6 5 10 5 10 6 5 1 6	24	

ADJUSTABLE DOUBLE-BRACED SELF-OILING DROP HANGERS.

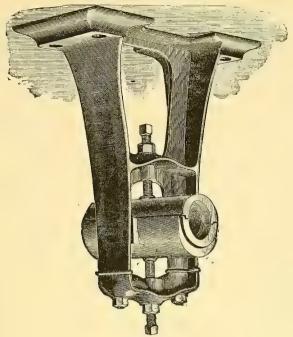


Fig. 1996.

PRICE LIST.

Range of Drop in Inches.	6 to 8	8½ to 10	10½ to 12	12½ to 14	14½ to 16	16½ to 18	$18\frac{1}{2}$ to 20	20½ to 22	Length of Bearing,
$\begin{array}{c} \text{Dia. Shaft} \\ 1\frac{119}{12} \\ 1\frac{19}{2} \\ 1\frac{19}{2} \\ \frac{1}{2} \\ \frac{1}{$	\$3.20 3.85 4.15 4.50 5.20	\$3.65 4.30 4.60 4.95 5 60	\$4.30 4.70 5.10 5.35 6.00	\$4.90 5.20 5.60 5.85 6.50	\$5.35 5.60 5.90 6.25 6.90	\$5.70 6.00 6.10 6.40 7.00	\$6.00 6.15 6.30 6.70 7.30	\$6.10 6.25 6.50 6.90 7.50	Inches. 4 5 6 7
Range of Drop in Inches.	7 to 9	10 to 12	13 to 15	16 to 18	19 to 21	22 to 24	25 to 27	28 to 30	Length of Bearing, Inches.
Diameter of Shafting.	\$6.95 8.45 10.55 13.15 15.60 17.00	\$7.60 9.35 11.20 13.80 16.75 19.80 25.35 31.20 42.25 46.80	\$8.25 10.15 12.00 15.35 18.05 21.20 27.30 33.15 42.90 48.75	\$8.90 10.80 13.00 16.00 19.25 22.40 28.90 34.80 43.85 51.00	\$9.55 11.50 14.00 16.90 20.15 23.40 30.20 36.10 45.50 53.95	\$10.20 12.50 15.10 18 30 21.80 25.35 32.50 38.35 47.45 57.85	\$10.85 13.40 16.10 20.15 23.40 26.95 34.45 40.95 50.05 63.05	\$11.70 14.25 17.85 22.75 26.30 29.90 37.70 42.90 53.30 68.90	8 9 10 11 12 13 14 16 16 18

Dimensions, except length of Bearings, which are given above, see pages 606-607.

These Hangers are readily convertible into Floor Stands by simply inverting the boxes.

Quotations on extra heavy Hangers and on extra long drops furnished on application.

E A double

DIMENSIONS OF ADJUSTABLE DOUBLE

BRACED DROP HANCERS.

SELF-OILING AND RING-OILING BEARINGS.

Diameter of Shaft									тя
No. of Hanger.	Drop.	A	В	C	E	G	Н	Size.	No.
$egin{array}{ll} { m Hanger\ No.\ 1} & & { m 1}_{10}^{5} { m to}\ { m 1}_{10}^{1} & & { m 1}_{10}^{8} & & { m 1}_{10}^{4} & { m 1}_{10}^{8} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{5} & & { m 1}_{10}^{4} - { m 1}_{10}^{4} & & { m 1}_{10}^{4$	$\begin{array}{c} 6\frac{1}{2} \text{ to } 8 \\ \frac{1}{2} \text{ to } 10 \\ 10\frac{1}{2} \text{ to } 12 \\ 12\frac{1}{2} \text{ to } 14 \\ 14\frac{1}{2} \text{ to } 16 \\ 16\frac{1}{1} \text{ to } 18 \\ 18\frac{1}{2} \text{ to } 20 \\ 20\frac{1}{2} \text{ to } 22 \\ 23\frac{1}{2} \text{ to } 25 \\ \end{array}$	$12 \\ 12\frac{5}{12} \\ 13\frac{1}{4} \\ 14\frac{1}{12} \\ 14\frac{1}{12} \\ 14\frac{1}{4} \\ 15\frac{1}{12} \\ 16\frac{1}{4} \\ 17$ $18\frac{1}{13}$	4 1 4 1 5 5 5 5 6 6 6 6 6 6	4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4	$\begin{array}{c} 8\\ 8\frac{5}{5}\\ 9\frac{5}{5}\\ 10\\ 10\frac{3}{4}\\ 11\frac{5}{5}\\ 12\frac{1}{13}\\ 13\frac{5}{5}\\ 14\frac{1}{4}\\ \end{array}$		1 1 1 1 1 1 1 1	Service stors or service stors	
Hanger No. 2 $1\frac{3}{8}-1\frac{7}{16}$ $1\frac{1}{2}-1\frac{1}{16}$ $1\frac{5}{4}-1\frac{1}{16}$ $1\frac{3}{4}-1\frac{1}{16}$	6½ to 8 8½ to 10 10½ to 12 12½ to 14 14½ to 16 16½ to 18 16½ to 20 20½ to 22 22½ to 22 22½ to 22 24½ to 26 26½ to 28	$\begin{array}{c} 13\frac{1}{12}\frac{1}{12}\frac{1}{12}\\ 13\frac{1}{12}\frac{1}{12}\\ 14\frac{1}{13}\\ 15\\ 16\frac{3}{12}\frac{1}{12}\\ 16\frac{3}{12}\frac{1}{12}\\ 17\frac{1}{12}\frac{1}{12}\\ 18\frac{1}{12}\frac{1}{12}\frac{1}{12}\\ 19\frac{1}{12}\frac{1}{12}\\ 30\frac{3}{12}\end{array}$	$\begin{array}{c} 4 \\ 4^{\frac{3}{3}\left[\frac{4}{3}\right]} \\ 4^{\frac{4}{3}\left[\frac{4}{3}\right]} \\ 4^{\frac{4}{3}\left[\frac{4}{3}\right]} \\ 4^{\frac{4}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{3}\left[\frac{4}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{3}\left[\frac{4}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{3}\left[\frac{4}{3}\left[\frac{4}{3}\right]} \\ 6^{\frac{1}{$	4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	$\begin{array}{c} 9\frac{1}{12} \\ 9\frac{1}{12} \\ 10\frac{1}{12} \\ 12\frac{3}{12} \\ 13\frac{3}{12} \\ 14\frac{1}{12} \\ 14\frac{1}{12} \\ 16\frac{1}{14} \\ \end{array}$		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	प्तिकान्। का स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन स्थापन	2 2 2 2 2 2 2 2 2 2 2 2 2 2
Hanger No. 3 $1_{6}^{7}-1_{16}^{15}$ $2_{-2_{16}^{16}}$ $2_{16}^{1}-2_{16}^{16}$ $2_{1}^{1}-2_{16}^{1}$	7 to 9 10 to 12 13 to 15 16 to 18 19 to 21 22 to 24 25 to 27 28 to 30	$\begin{array}{c} 15\frac{3}{8}\\ 16\frac{1}{4}\\ 17\frac{1}{2}\\ 18\frac{3}{8}\\ 19\frac{3}{4}\\ 20\frac{3}{8}\\ 21\frac{3}{4}\\ 22\frac{3}{4} \end{array}$	191491491491491519 5 5 5 7 7 7 7 7 7	55 55 55 55 56 6	$\begin{array}{c} 10\frac{5}{10} \\ 11\frac{5}{10} \\ 12\frac{5}{10} \\ 12\frac{5}{10} \\ 13\frac{4}{10} \\ 14\frac{5}{10} \\ 15\frac{4}{17} \\ 18 \end{array}$			೧೯೯೮ ಕರ್ಣಕ್ಷಕ್ಕೂ ಅತ್ಯಾಗಿಸುವುದು	2 2 2 2 4 4 4 4 4
Hanger No. 4 $\begin{array}{c} 2\frac{\pi}{8} \cdot 2\frac{7}{18} \\ 2\frac{5}{2} - 2\frac{5}{16} \\ 2\frac{5}{2} - 2\frac{11}{16} \\ 2\frac{5}{4} - 2\frac{11}{16} \\ 2\frac{3}{4} - 2\frac{1}{16} \end{array}$	7 to 9 10 to 12 13 to 15 16 to 18 19 to 21 22 to 24 25 to 27 28 to 30 31 to 33	$16\frac{1}{2}$ 18 19 20 21 $22\frac{1}{2}$ $23\frac{1}{2}$ $24\frac{1}{2}$ 27	$\begin{array}{c} 5 \\ 6\frac{1}{2} \\ 7\frac{3}{4} \\ 9 \\ 9 \\ 9\frac{1}{8} \\ 9\frac{1}{8} \\ 9\frac{1}{2} \\ 9\frac{1}{2} \end{array}$	47/8 55/7/8 55/7/8 66/8 8	$\begin{array}{c} 11\frac{3}{4} \\ 12\frac{3}{4} \\ 13\frac{4}{4} \\ 14\frac{3}{4} \\ 15\frac{4}{4} \\ 17\frac{4}{4} \\ 18\frac{1}{4} \\ 19 \\ 21\frac{5}{8} \end{array}$	\$588 4 44 4 461 162 4 471 172 4 471 172	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	গ্ৰাক্ত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰাৰূত্ৰ	2 2 4 4 4 4 4 4 4

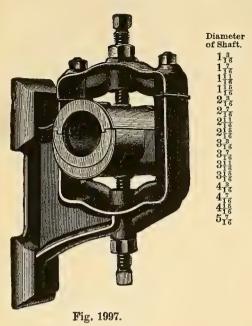
Length of Self-Oiling Bearings and Price List, see page 605.

DIMENSIONS OF ADJUSTABLE DOUBLE BRACED DROP HANGERS-Continued.

Diameter of Shaft		ПАП	GERS-	Contini	uea.				
and No. of Hanger.	Drop.	A	В	\mathbf{C}	E	G	Н	Size.	No.
77 37 5	7 to 9	$18\frac{1}{4}$	5	5	$13\frac{1}{4}$	• •	1_8^3	3 4	2
Hanger No. 5	10 to 12	$18\frac{3}{4}$	7	5	$13\frac{7}{8}$	* *	138	34	2
27.045	13 to 15	$20\frac{1}{4}$	81/8	$6\frac{1}{4}$	14^{3}_{4}	35	$1\frac{1}{2}$	3 3 4 3 4	4
$2\frac{7}{8}$ - $2\frac{15}{16}$	16 to 18	$20\frac{3}{4}$	$9\frac{1}{4}$	6	$15\frac{1}{2}$	$4\frac{3}{4}$	1 ½	34	4
$3 - 3\frac{1}{16}$	19 to 21	23	95	7^{3}_{4}	$17\frac{1}{4}$	5	11	3 4	4
21.00	22 to 24	24½	$9\frac{7}{8}$	$7\frac{3}{4}$	$18\frac{1}{4}$	$5\frac{1}{8}$	$1\frac{1}{2}$	• 3/4	4
$3\frac{1}{8} \cdot 3\frac{3}{16}$	25 to 27	$25\frac{1}{4}$	$9\frac{7}{8}$	$6\frac{1}{4}$	$19\frac{1}{8}$	$5\frac{1}{4}$	13	3 4 3	4
$3\frac{1}{4} - 3\frac{5}{16}$	28 to 30	$26\frac{1}{4}$	10	$6\frac{1}{2}$	$20\frac{1}{2}$	$5\frac{1}{8}$	11/2	3 4	4
	31 to 33	$27\frac{1}{4}$	9_{4}^{3}	758	$21\frac{1}{2}$	$5\frac{1}{8}$	$1\frac{1}{2}$	34	4
	34 to 36	28½	10	7	$22\frac{5}{8}$	$5rac{1}{8}$.	$1\frac{1}{2}$	34	4
	7 to 9	$19\frac{1}{4}$	5	$6\frac{1}{4}$	$14\frac{1}{4}$		$1\frac{1}{2}$	1	2
Hanger No. 6	10 to 12	$20\frac{3}{4}$	$8\frac{3}{8}$	$6\frac{1}{2}$	$14\frac{3}{4}$	4_{2}^{1}	$1\frac{1}{2}$	7/8	4
	13 to 15	$21\frac{3}{4}$	$8\frac{1}{4}$	$6\frac{1}{2}$	$15\frac{3}{4}$	$4\frac{1}{2}$	$1\frac{1}{2}$	7 8	4
$3\frac{3}{8} - 3\frac{7}{16}$	16 to 18	$22\frac{3}{4}$	$8\frac{1}{4}$	$6\frac{1}{2}$	$17\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{2}$	7/8 7/8	4
$3\frac{1}{2} - 3\frac{9}{16}$	19 to 21	$23\frac{3}{4}$	$8\frac{1}{4}$	$6\frac{1}{2}$	$18\frac{3}{4}$	$4\frac{3}{8}$	1 \{ \}	$\frac{7}{8}$	4
	22 to 24	$24\frac{3}{4}$	$8\frac{1}{4}$	$6\frac{1}{2}$	$19\frac{1}{2}$	$4\frac{3}{8}$	$1\frac{1}{2}$	7/8	4
$3\frac{5}{8} - 3\frac{1}{1}\frac{1}{6}$	25 to 27	$26\frac{3}{8}$	9	6_{8}^{5}	$20\frac{3}{4}$	$4\frac{3}{8}$	$1\frac{1}{2}$	7/8	4
$3\frac{3}{4} - 3\frac{1}{16}$	28 to 30	$27\frac{1}{4}$	10	$7\frac{3}{8}$	$21\frac{5}{8}$	$4\frac{3}{4}$	1_{4}^{3}	7/8	4
	31 to 33	$28\frac{3}{8}$	10	$7\frac{1}{2}$	$22\frac{5}{8}$	5	$1\frac{1}{2}$	1	4
	34 to 36	$29\frac{3}{8}$	10	$7\frac{1}{2}$	$23\frac{1}{2}$	$5\frac{1}{4}$	$1\frac{1}{2}$	1	4
	10 to 12	251	10	81	167	438	13	1	4
Hanger No. 7	13 to 15	$26\frac{5}{8}$	$10\frac{3}{8}$	$8\frac{1}{2}$	18	$4\frac{1}{4}$	$1\frac{7}{8}$	1	4
3	16 to 18	$27\frac{1}{2}$	$10\frac{3}{8}$	$8\frac{1}{2}$	18_{8}^{7}	$4\frac{3}{8}$	17	1	4
$3\frac{7}{8} - 3\frac{15}{16}$	19 to 21	$28\frac{3}{4}$	$10\frac{3}{8}$	85	20	$4\frac{1}{4}$	$1\frac{7}{8}$	1	4
$4 - 4\frac{1}{16}$	22 to 24	$29\frac{1}{2}$	111	$9\frac{3}{4}$	$21\frac{1}{8}$	$5\frac{3}{8}$	$1\frac{7}{8}$	1	4
•	25 to 27	$30\frac{1}{2}$	11½	9_{4}^{3}	$22\frac{1}{8}$	5_{8}^{3}	$1\frac{7}{8}$	1	4
$4\frac{1}{8} - 4\frac{3}{16}$	28 to 30	31 §	11½	$9\frac{3}{4}$	$23\frac{1}{8}$	5^3_8	2	1	4
$4\frac{1}{4} - 4\frac{5}{16}$	31 to 33	$32\frac{3}{4}$	11½	$9\frac{3}{4}$	$24\frac{1}{4}$	$5\frac{3}{8}$	2	1	4
1 10	34 to 36	$33\frac{3}{4}$	111	9_{4}^{3}	$25\frac{1}{8}$	$5\frac{3}{8}$	2	1	4
	10 to 12	273	12}	$10\frac{1}{4}$	181	55	$2\frac{1}{8}$	1	4
Hanger No. 8	13 to 15	281	$12\frac{1}{5}$	$10\frac{1}{4}$	19	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
Transcr Trot	16 to 18	$29\frac{1}{4}$	121	$10\frac{1}{4}$	$20\frac{1}{8}$	5^{3}_{8}	$2\frac{1}{8}$	1	4
$4\frac{3}{8}$ $-4\frac{7}{16}$	19 to 21	$30\frac{1}{2}$	$12\frac{1}{2}$	$10\frac{1}{1}$	$21\frac{3}{8}$	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
$4\frac{1}{2} - 4\frac{9}{16}$	22 to 24	311	$12\frac{1}{2}$	$10\frac{1}{4}$	$22\frac{7}{8}$	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
-2 -16	25 to 27	$32\frac{1}{2}$	$12\frac{1}{2}$	$10\frac{1}{4}$	$23\frac{7}{8}$	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
$4\frac{5}{8}$ $4\frac{1}{16}$	28 to 30	$33\frac{3}{4}$	$12\frac{1}{2}$	$10\frac{1}{4}$	$24\frac{5}{8}$	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
$4\frac{3}{4}$ $4\frac{1}{16}$	31 to 33	35	$12\frac{1}{2}$	$10\frac{1}{4}$	$26\frac{1}{4}$	$5\frac{3}{8}$	$2\frac{1}{8}$	1	4
-4 -10	34 to 36	36	$12\frac{1}{2}$	$10\frac{1}{4}$	$27\frac{3}{8}$	5^3_8	$2\frac{1}{8}$	1	4
Hanger No. 9	13 to 15	$30\frac{1}{4}$	$12\frac{1}{2}$	$9\frac{1}{8}$	$20\frac{7}{8}$	$5^3_{ m S}$	$2\frac{1}{4}$	1	4
Hanger 110. a	16 to 18	$31\frac{1}{4}$	$12\frac{1}{2}$	$10\frac{1}{2}$	$22\frac{1}{2}$	5^{3}_{8}	$2\frac{1}{4}$	1	$\overline{4}$
$4\frac{7}{8} - 4\frac{1}{1}\frac{5}{6}$	19 to 21	$32\frac{1}{2}$	12½	$10\frac{1}{2}$	$23\frac{1}{2}$	5 <u>3</u>	$2\frac{3}{8}$	1	$\overline{4}$
	22 to 24	335	$12\frac{1}{2}$	$10\frac{1}{2}$	$24\frac{3}{4}$	$5\frac{3}{8}$	23	1	$\overline{4}$
$5 - 5_{16}^{1}$	25 to 27	$34\frac{5}{8}$	$12\frac{1}{2}$	$10\frac{3}{4}$	26	$5\frac{3}{8}$	$2\frac{3}{8}$	1	4
E1 E3	28 to 30	$35\frac{5}{8}$	12½	$10\frac{3}{4}$	27	$5\frac{3}{8}$	$2\frac{3}{8}$	1	4
5\frac{1}{8} - 5\frac{3}{16}	31 to 33	37	$12\frac{1}{2}$	$10\frac{3}{4}$	28	$5\frac{3}{8}$	$2\frac{3}{8}$	1	4
$5\frac{1}{4}$ - $5\frac{5}{16}$	34 to 36	38	121	$10\frac{5}{8}$	$29\frac{1}{2}$	$5\frac{3}{8}$	$2\frac{3}{8}$	1	4
	94 10 90						- 8		

Length of Self-Oiling Bearings, page 605. Price List, see page 605

ADJUSTABLE SELF-OILING POST HANGER.

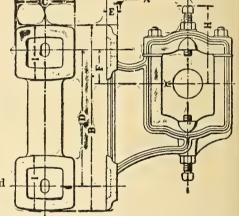


PRICE LIST.

	Length	Distance from
Price.	of Bearing.	Foot to Centre
\$3.80	5	4
4.30	6	45
5.40	7	45
6.40	8	$5\frac{\hat{3}}{3}$
8.10	9	$5\frac{1}{4}$
10.20	10	65
12.90	11	63
16.20	12	8 1
20.70	13	8 1
26.20	14	95
32.10	15	98
38.00	16	11°
44.25	16	11
50.50	16	131
64.50	18	131
78.50	20	15 1

DIMENSIONS OF ADJUSTABLE SELF-OILING AND RING-OILING POST HANGERS

See Table below, and for Diameter of Shaft and Length of Bearing see Table in Price List above.



							~F		— —-H-——				
No. of	Diameter	A	В	O	D	E	Ring	Self	Ring	Self	1		LTS-
Frame.	of Shaft.						Oiling.	Oiling.	Oiling,	Oili n g.		No.	Size.
1	15	4	$9\frac{1}{8}$	3	678787878787878787878787878787878787878	5		1		5	3	2	1
1	1 1 8 1 5	4	$9\frac{1}{8}$	3	$6\frac{7}{2}$	\$		1		5	3	2	1
1	$1\frac{15}{16}$	4	91	3	62	5		1		5	3	$\tilde{2}$	2
$\tilde{2}$	1.7		101	33	71	elian (ucokrookrookr	116	11	53			2	3
$\tilde{2}$	111	A 5	$10\frac{1}{2}$	3 ³ / ₄ 3 ³ / ₄	771	43	118	$\frac{1\frac{1}{4}}{1\frac{1}{4}}$	$\frac{5\frac{3}{4}}{5\frac{3}{4}}$	5 <u>5</u> 5 <u>5</u>	03	8	2
3	1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	* * g	13	41	92	4 4	$1\frac{1}{16}$ $1\frac{5}{16}$	14	94	98	34	2	2
3	118	05 F 1	13	44	9	1	7.48	2	7	?°	44	2 2	8
	216	95		41 43 43 43		1	15	15	$7\frac{1}{2}$ 8	$7\frac{1}{2}$	44	2	\$
4	z_{18}	68	15	44	$11\frac{1}{4}$	11	17/8	$1\frac{7}{8}$	8	8	43	2	5
4	$2\frac{1}{16}$	68	15	44	$11\frac{1}{4}$	1 8	17/8	$1\frac{7}{8}$	8	8	43	2	5
5	$2\frac{15}{16}$	$8\frac{1}{8}$	$17\frac{3}{4}$	6	$13\frac{5}{8}$	$1\frac{1}{4}$	35	$3\frac{3}{8}$	9	91	$5\frac{1}{8}$	2	3
5	3^{-8}_{1a}	$8\frac{1}{3}$	$17\frac{3}{4}$	6	13§	11	$3\frac{5}{8}$	38	9	$9\frac{1}{4}$	3 3 4 4 4 4 4 5 5 5 5	2	A (GOA) (GOOCHUOD)CHOOCHUC
6	37	445566889999	22 j	$7\frac{1}{4}$ $7\frac{1}{4}$	$16\frac{1}{4}$	$1\frac{3}{6}$	3\frac{3}{2}	1 1 1 00 00 00 00 00 00 00 00 00 00 00 0	93	$10\frac{1}{4}$	78	2	14
6	3‡‡	95	$22\frac{1}{8}$	7	$16\frac{1}{4}$	13	33	31	$\frac{9\frac{3}{4}}{9\frac{3}{4}}$	$10\frac{1}{4}$	7	$\tilde{2}$	1
7	318	11°	251	8	181	11	43	43	$10\frac{3}{4}$	114		$\tilde{\tilde{2}}$	1
7	4.8	11	$25\frac{1}{8}$	8	$18\frac{1}{3}$	11	43	43	103	11	$\frac{7\frac{1}{2}}{7\frac{1}{2}}$		1
8	4 7	$13\frac{1}{4}$	291	91	$22\frac{1}{4}$	11	14	48			73	2	1
8	416	191	$29\frac{1}{5}$	$ \begin{array}{c} 8\frac{1}{4} \\ 8\frac{1}{4} \\ 8\frac{1}{4} \end{array} $	$22\frac{1}{4}$	10	11100000000000000000000000000000000000	ပစ္သ	115	$11\frac{3}{4}$	8	2	18
9	$\frac{416}{416}$	$13\frac{1}{4}$		04		13	54	Đģ	112	$11\frac{3}{4}$	8	2	$1\frac{1}{8}$
	416	$13\frac{1}{4}$	30	84	$22\frac{1}{4}$	15	58	$5\frac{1}{4}$	12	$12\frac{1}{4}$	8	2	11/4
9	5_{16}^{8}	$13\frac{1}{4}$	30	$8\frac{1}{4}$	$22\frac{1}{4}$	15	$5\frac{3}{8}$	$5\frac{1}{4}$	12	$12\frac{1}{4}$	8	2	$1\frac{1}{4}$
1.0	$5\frac{7}{18}$	$15\frac{1}{4}$	35	11点	$26\frac{1}{8}$	14 (1) (2003) (20			121	13§	83 83 83 84 84	2	1 l
10	$5\frac{1}{16}$	$15\frac{1}{4}$	35	111	$26\frac{\chi}{8}$	$1\frac{1}{2}$	7	55	$12\frac{7}{2}$	$13\frac{7}{8}$	83	2	11
10	5 <u>1</u> g	$15\frac{1}{4}$	35	$11\frac{7}{8}$	$26\frac{1}{8}$	1 1	$6\frac{7}{8}$	5%	$12\frac{1}{2}$	13 1	83	2	11
	T 0	18		8	46	- 2	-8	-8	2	-09	4	~	-4

ADJUSTABLE SELF-OILING PEDESTAL.

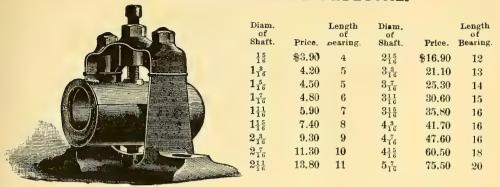
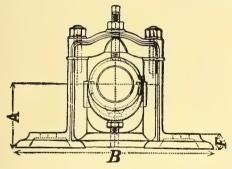
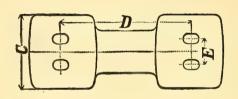


Fig. 1998.

These Pedestals can be used as Short Drop Hangers by inverting the box.

DIMENSIONS OF ADJUSTABLE SELF-OILING AND RING-OILING PEDESTALS.





	_	-							
No. of Frame.	Diameter of Shaft.	A	В	c	D	E	F	No Bo	Size.
1	15 16	$3\frac{1}{2}$	$10\frac{3}{4}$	4	$6\frac{7}{8}$		1	2	
1	$1\frac{3}{16}$	3 <u>1</u>	$10\frac{3}{4}$	4	$6\frac{7}{8}$	• •	1	2	121 121 12
1	$1\frac{5}{16}$	$3\frac{1}{2}$	$10\frac{3}{4}$	4	$6\frac{2}{8}$		1	2	į.
2	178	4.	$12\frac{1}{8}$	$4\frac{1}{4}$	8		$1\frac{1}{8}$	2	$\frac{1}{2}$
2	$1\frac{1}{1}\frac{1}{6}$	4	$12\frac{1}{8}$	$4\frac{1}{4}$	8		$1\frac{1}{8}$	2	101 101 GB GB TB TB TB TB TB TB
3	$1\frac{15}{16}$	$4\frac{1}{4}$	$13\frac{7}{8}$	$5\frac{1}{8}$	$9\frac{1}{2}$	• •	$1\frac{1}{4}$	2	<u>5</u> 8
3	$2\frac{3}{18}$	$4\frac{3}{4}$	$13\frac{7}{8}$	$5\frac{1}{8}$	$9\frac{1}{2}$	4.1	14	2	5
4	$2\frac{7}{16}$	$5\frac{1}{4}$	$16\frac{7}{8}$	$5\frac{7}{8}$	11 5	- •	$1\frac{3}{8}$	2	7 8
4	$2\frac{11}{18}$	$5\frac{1}{4}$	$16\frac{7}{8}$	$5\frac{7}{8}$	$11\frac{5}{8}$	• •	$1\frac{3}{8}$	2	$\frac{7}{8}$
5	2_{16}^{15}	6	19	$6\frac{1}{2}$	13		1 5	2	8
5	3_{16}^{8}	6	19	$6\frac{1}{2}$	13	• •	1 <u>\$</u>	2	8
6	3^{7}_{16}	7	$21\frac{5}{8}$	$8\frac{1}{4}$	$14\frac{1}{2}$	$2\frac{7}{8}$	$1\frac{3}{4}$	4	8
6	$3\frac{1}{1}\frac{1}{6}$	7	21 ½	$8\frac{1}{4}$	$14\frac{1}{2}$	$2\frac{7}{8}$	13	4	
7	$3\frac{1}{1}\frac{5}{6}$	$7\frac{1}{4}$	$23\frac{1}{8}$	85	16	$2\frac{7}{8}$	13	4	1
7	$4\frac{3}{16}$	$7\frac{1}{4}$	$23\frac{1}{8}$	85	16	$2\frac{7}{8}$	13	4	1
8	$4\frac{7}{16}$	71	$24\frac{1}{4}$	9 1	171	$3\frac{1}{2}$	17	4	1
8	$4\frac{1}{16}$	$7\frac{1}{2}$	$24\frac{1}{4}$	$\frac{9\frac{1}{8}}{10}$	$17\frac{1}{8}$ 19	53 3 ⁷	$rac{1rac{7}{8}}{1rac{7}{8}}$	4	
9	415	8	$26\frac{1}{8}$	10 10	19	$\frac{3\frac{3}{4}}{3\frac{3}{4}}$	1 8	4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
9	$5\frac{3}{16}$	8	$26\frac{1}{8}$	10	$19\frac{1}{4}$	$\frac{3_{\overline{4}}}{4}$	1 7/8	4	14
10	5^{-7}_{16}	$8\frac{3}{4}$	$27\frac{1}{2}$	10	$19\frac{1}{4}$ $19\frac{1}{4}$	4	$1\frac{7}{8}$	4	$1\frac{1}{4}$
10	$5\frac{11}{16}$	$8\frac{3}{4}$	$27\frac{1}{2}$	10	$19\frac{1}{4}$	4	17 17 8	4	14 14
10	$5\frac{15}{16}$	8^{3}_{4}	$27\frac{1}{2}$	19	104	-1	18	-1	-4

RICID PILLOW BLOCK. PLAIN BEARINGS.

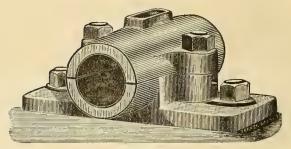
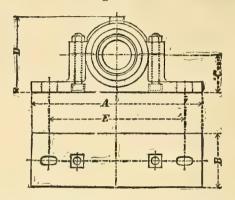


Fig. 1999.



PRICE LIST AND DIMENSIONS OF RICID PILLOW BLOCKS WITH PLAIN BEARINGS.

					Page 100 100 1	111400,			
D!		Length		70		72			
Diam. of Shaft.	Price.	of Bearing.	A	В	C	D	E	Thickness of Foot.	Size o Bolts
1 5 1 6	\$1.30	$3\frac{1}{8}$ in.	7	1 2 8	1	2	$5\frac{1}{8}$	$\frac{1}{2}$	1/2
$1\frac{3}{16}$	1.60	4 "	$7\frac{1}{4}$	$2\frac{1}{8}$	1 <u>3</u>	$2\frac{1}{2}$	$5\frac{1}{2}$	1/2	Ť
$1\frac{7}{16}$	2.00	43 "	7^{3}_{4}	25	$1\frac{3}{8}$	$2\frac{7}{8}$	$5\frac{7}{8}$	9 1 &	1
$1\frac{1}{1}\frac{1}{6}$	2.65	5_4^3 "	9	3	$1\frac{1}{2}$	$3\frac{1}{4}$	7	<u>5</u>	<u>5</u>
$1\frac{1}{1}\frac{5}{6}$	3.35	63 "	$9\frac{1}{4}$	3^{1}_{2}	$1\frac{3}{4}$	$3\frac{5}{8}$	$7\frac{1}{8}$	5 5	5
$2\frac{3}{16}$	4.00	714 "	$9\frac{1}{2}$	$3\frac{7}{8}$	$1\frac{\hat{7}}{3}$	4	$7\frac{3}{8}$	<u>위</u> 5 5 5 5 5 5 5 8 4	3
$2\frac{7}{1}$	4.80	8 "	11 1	$4\frac{1}{4}$	$2\frac{1}{8}$	$4\frac{7}{16}$	$8\frac{1}{2}$	13 16	그런 그런 되면 되면 하게 하게 하게 다른 다른 다른 다른
$2\frac{1}{1}\frac{1}{6}$	5.65	9 "	$11\frac{1}{2}$	$4\frac{3}{4}$	$2\frac{1}{4}$	$4\frac{1}{16}$	9	7 8	4 3
$2\frac{15}{16}$	6.70	9^3_4 \cdots	12^{3}_{4}	5_4^1	$2\frac{1}{2}$	$5\frac{1}{8}$	9_{4}^{3}	1	1
3,3	7.75	101 "	$13\frac{1}{4}$	5^{1}_{2}	$2\frac{3}{4}$	5_{2}^{1}	$10\frac{1}{2}$	1	7
$3_{1\overline{6}}^{7}$	8.90	$11\frac{1}{2}$ "	$13\frac{3}{4}$.	6	$2\frac{7}{8}$	$5\frac{3}{4}$	$10\frac{1}{4}$	1	7
$3\frac{1}{16}$	10.10	$12\frac{1}{4}$ "	$15\frac{1}{4}$	$6\frac{1}{2}$	$3\frac{1}{8}$	$6^{rac{1}{3}}$	111	1 3	8 7
315	11.50	13 ''	16	7	$3\frac{1}{4}$	6 <u>5</u>	12½	$1\frac{1}{4}$	1
4 3 6	13.25	14 ''	17	7	$3\frac{5}{8}$	71	13	1 हुँ	1
$4_{7\overline{6}}$	15.00	15 ''	$18\frac{1}{4}$	7	35	7^{-5}_{16}	$14\frac{1}{2}$	$1\frac{1}{2}$	14
415	19.00	18 "	$18\frac{1}{4}$	7	4_8^3	$9\frac{1}{8}$	145	1 9 1 6	1 1 1
5_{16}	23.50	19 "	$20\frac{1}{4}$	7	$4\frac{3}{8}$	$9\frac{3}{8}$	16	1 9 1 6	$1\frac{1}{4}$
515	28.50	20 11	$20\frac{1}{4}$	7	$4\frac{3}{8}$	95	16	1 7 8	14
$6_{7\overline{6}}$	34.00	20 "	22^{3}_{4}	8	$5\frac{7}{8}$	$11\frac{1}{2}$	17_{4}^{3}	17	11
$6^{1.5}_{1.6}$	40.00	$20\frac{1}{4}$	$22\frac{3}{4}$	8	$5\frac{7}{8}$	11^{3}_{4}	$17\frac{3}{4}$	$1\frac{7}{8}$	11/2
· 775	47.00	21 ''	$22\frac{3}{4}$	9	$5\frac{7}{8}$	12	$19\frac{3}{4}$	$1\frac{7}{8}$	11
-7^{15}_{16}	55.00	22 "	$22\frac{3}{4}$	9	$5\frac{7}{8}$	$12\frac{3}{8}$	$19\frac{3}{4}$	$1\frac{7}{8}$	1 ½

SOLE OR BASE PLATES.

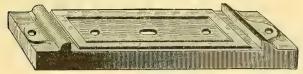
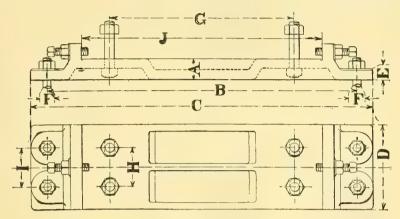


Fig. 2000.

Diameter			$1\frac{3}{16}$	$1\frac{7}{16}$	111	$1\frac{15}{16}$	2_{16}^{3}	2,7	$2\frac{1}{16}$	215	3^{13}_{15}	$\frac{3\frac{7}{16}}{8.70}$
Price			\$2.50	3.00	3.50	4.00	4.50	5.00	5.50	7.70	8.20	8.70
Diameter			$3\frac{11}{16}$	$3\frac{15}{6}$	4^{-7}_{16}	418	5_{16}^{7}	$5\frac{15}{16}$	6_{16}^{7}	$6\frac{15}{16}$	7,7	715 33. 2 0
Price			\$9.20	11.00	14.60	22.00	23.50	25.00	27.00	28.50	31.00	33.20



DIMENSIONS FOR RIGID PILLOW BLOCK.

					Page 61	.0.					
Diam.			_	_							No.
of Shaft.	A	$^{\mathrm{B}}$	С	D	E	\mathbf{F}	G	H	I	J	of Bolts.
Shart.	4.1	401	001	r 1	7	,	0.1				Bolts.
216	ΥŞ	113	$20\frac{1}{2}$	95	8	<u>2</u>	$8\frac{1}{2}$		3	$12\frac{1}{2}$	4
21. 211 211 213	1 🚽	$17\frac{1}{2}$	$20\frac{1}{2}$	$5\frac{1}{2}$	7 7 8	5	9		3	$12\bar{s}$	4
215	15	$19\frac{1}{3}$	$22\frac{1}{2}$	$\frac{5\frac{1}{5}}{5\frac{1}{2}}$	1	3	$9\frac{3}{4}$		31	$14\frac{1}{4}$	$\hat{4}$
3 1 6 3 3 6 3 7 6	14 11 12 12 13 14	$17\frac{1}{2}$ $17\frac{1}{2}$ $19\frac{1}{2}$	22½ 24¼ 25¾ 27¾ 27¾ 28½	$6\frac{1}{4}$	1	이 (1912) 1919 (국민 (국민 (국민 (국민 (국민 (국민 (국민 (국민 (국민 (국민	$10\frac{1}{2}$		$\frac{3\frac{1}{2}}{3\frac{1}{2}}$	$14\frac{1}{4}$	
2.7.	13	21	211	74	11	3	$10\frac{3}{4}$		$4^{\frac{3}{2}}$	$15^{\frac{14}{4}}$	4
916	13	991	053	17/1	1 k 1 k 1 k 1 k	4	111				4
516		$22\frac{1}{2}$	204	$\frac{7_{\frac{1}{2}}}{8}$	18	¥.	115		4	$16\frac{1}{2}$	4
818	15	24	273	8	14	ģ	$12\frac{1}{2}$		$4\frac{1}{2}$	$17\frac{1}{4}$	4
4^{3}_{16}	1_{8}^{j}	25	$28\frac{1}{2}$	8	14	7 8	13		41	$18\frac{1}{4}$	4
47.	2	$26\frac{1}{5}$	307	8	1흥	1	145		41	$19\frac{7}{3}$	$\hat{4}$
3 1 5 5 5 5 6 4 7 6 5 5 6 4 1 5 5 6 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2	$26\frac{1}{2}$ $26\frac{1}{2}$	30\frac{1}{5} 32\frac{3}{4} 32\frac{3}{4}	8	13	1	$11\frac{1}{2} \\ 12\frac{1}{2} \\ 13 \\ 14\frac{1}{2} \\ 14\frac{1}{2}$		$4\frac{1}{2}$ $4\frac{1}{2}$ $4\frac{1}{2}$ $4\frac{1}{2}$ $4\frac{1}{2}$ $4\frac{1}{2}$	$19\frac{1}{2}$	4
5-7-	$2\frac{1}{4}$	29	303	8 8 8	13	î	$ \begin{array}{c} 16 \\ 16 \\ 17\frac{3}{4} \\ 17\frac{3}{4} \end{array} $	• •	11	011	
516 515	~ 4 0 l	29	903	0	18	1	10		41	$21\frac{5}{2}$	4
り遺	$2\frac{1}{4}$		52¥ 00		18	1	10		43	$21\frac{1}{2}$ $24\frac{1}{4}$	4
6_{16}	$2\frac{1}{2}$	32	36	9	15	1	174		5	$24\frac{1}{4}$	4
6_{16}^{16} 6_{16}^{16}	$2\frac{1}{2}$	32	36	9	1.5	1	$17\frac{3}{4}$		5	$24\frac{1}{4}$	4
7-75	$2\frac{1}{2}$ $2\frac{3}{4}$	35	$39\frac{1}{3}$	10	15	1	$19\frac{3}{4}$		6	$26\frac{1}{4}$	$\hat{4}$
7.16 7.15 7.15	$2\frac{3}{4}$	35	$39\frac{1}{2}$	10	1.4000000000000000000000000000000000000	1	$19\frac{3}{4}$		6	$26\frac{1}{4}$	4
• 1 6	4		2	20	-8	-	104	• •	•	204	-1

DIMENSIONS FOR ADJUSTABLE SELF-OILING AND RING-OILING PEDESTALS.

Page 609.											
16 to 156 176 to 136 176 to 276 176 to 276 276 to 276 276 to 276 276 to 376 276 to 376 376 to 376 376 to 476 477 to 476 477 to 477 477 to 477 576 to 576 576 to 516	1111111111111111111111111111111111111	$16\frac{1}{3}$ 18 $19\frac{1}{2}$ $23\frac{1}{4}$ $29\frac{1}{3}$ 31 32 $34\frac{1}{4}$ $35\frac{3}{4}$	$\begin{array}{c} 18\frac{1}{2} \\ 20 \\ 21\frac{1}{2} \\ 25\frac{3}{4} \\ 27\frac{3}{4} \\ 34 \\ 35 \\ 39\frac{1}{4} \end{array}$	$\begin{array}{c} 4\frac{1}{5}\frac{1}{34}\frac{1}{4}$	(5)(40)(40)(40)(40)(20)(20)(10)(10)	191421-191620420 14 1 1 1 1 1	$egin{array}{c} 6rac{7}{8} & 8 & 9rac{1}{2} & 8 & 11rac{1}{8} & 13 & 14rac{1}{2} & 16 & 17rac{1}{18} & 19rac{1}{4} & 19 & 19rac{1}{4} & 19 & 19 \end{array}$	27 8 27 8 27 8 33 4 4	ქერმი გარეთ ქერე ქერები გარები $12\frac{1}{2}$ 14 $15\frac{1}{2}$ $18\frac{3}{4}$ $20\frac{3}{4}$ $23\frac{1}{2}$ 25 26 28 $29\frac{1}{4}$		

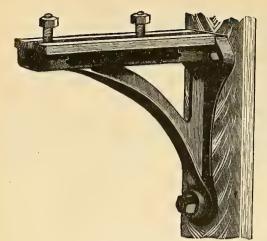


Fig. 2001.

WALL BRACKETS. WITH BOLTS FOR SECURING PILLOW BLOCKS.

Designed for use when a greater distance from post to centre of box is required than can be obtained by the use of the regular form of Post Hanger. Any style of box desired can be used upon them.

Diam. of Shaft.	Projection to Centre of Shaft.	Price.
15 16	(18 inches.	\$5 50
to $1\frac{1}{16}$	$\begin{cases} 24 & \text{``} \\ 30 & \text{``} \end{cases}$	6.00 6.50
$1\frac{15}{16}$	\int_{24}^{18} "	10.20
$\frac{\text{to}}{3\frac{3}{16}}$	$\begin{cases} 24 & \text{``} \\ 30 & \text{``} \end{cases}$	10.90 11.60
3,7 to	\int_{24}^{18} "	18.60
$\frac{47}{16}$	$\begin{cases} 24 & \text{``} \\ 30 & \text{``} \end{cases}$	19.60 20.60
$\frac{4\frac{15}{16}}{10}$	\$19 " 24 "	26.60
$5\frac{1}{1}\frac{5}{6}$	30 "	28.00 29.50

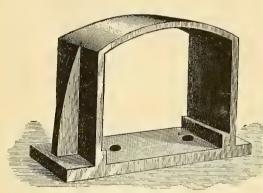


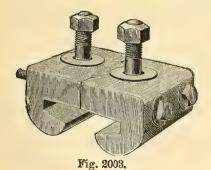
Fig. 2002.

WALL FRAMES OR BOXES.

Diam. of Shaft.	Price.	Diam. of Shaft.	Price.
$1\frac{3}{16}$	\$6 50	$3\frac{7}{16}$	\$21 50
$1\frac{7}{16}$	7.00	$3\frac{11}{16}$	24.00
$1\frac{11}{16}$	7.50	$3\frac{1}{1}\frac{5}{6}$	27.50
$1\frac{15}{16}$	9.00	$4\frac{7}{16}$	31.50
$2\frac{3}{16}$	10.50	$4\frac{15}{16}$	35.50
$2\frac{7}{16}$	12.00	$5_{\frac{1}{6}}$	43 50
$2\frac{11}{16}$	13.50	$5\frac{1.5}{1.6}$	50.00
$2\frac{1}{1}\frac{5}{6}$	16.00	$6\frac{7}{16}$	55 00
$3\frac{3}{16}$	19.00	615	60.00

BEAM CLAMPS.

MADE TO FIT ALL SIZES OF I BEAMS.



Price, each



Fig. 2004.

. \$3.00

STANDARD CROSS ARMS.

34 x 41 inches, Painted and Bored for 11 inch Pins.



Fig. 2005.

No. Pins					2	4	4	4	-6	6	8	8	10
Length, feet .					3	4	5	6	6	8	8	10	10
In Lots less than	500 lines	al feet,		Each	\$0.33	.44	.55	.66	.66	.88	.88	1.20	1 20
In Lots of 500 to	1,000 lin	eal feet,		6.6	.27	.36	.45	.54	.54	.72	.72	1.00	1.00
		In Lots	ονε	er 1 00	0 lineal	feet,	Specia	al Pric	e.				

CROSS ARM BRACES.

O CHEMINNER CO

		,	rig. &	,00 0.					
Plain Iron Galvanized Iron	28 x 1½ x ½ inche 28 x 1¼ x ¼							Per pair	\$0.17½ .23
Plain Iron Galvanized Iron	$\begin{array}{cccccccccccccccccccccccccccccccccccc$:					44	.15 .18
Plain Iron Galvanized Iron	$\begin{array}{cccccccccccccccccccccccccccccccccccc$						٠	46 46	.14 .16

WOOD PINS.



Fig. 2007.

Size $1\frac{1}{2}$ inch, Locust, Per 1,000 \$21.00 Size $1\frac{1}{2}$ inch, Oak, Painted, Per 1,000 \$15.00 Wood Pins furnished in $1\frac{1}{4}$ inch size at same prices.

BROWN'S DUPLEX PINS.



Fig. 2008.

Size 1½ inch, Oak, Painted, Per 1,000 \$30.00 Size 1½ inch, Locust, . . Pe: 1,000 \$40.00

STEEL INSULATOR PINS.

(Patented.)



Fig. 2009.

Size inch diameter at Nut End. Each, \$0.07

WOOD BRACKETS.



Fig. 2010.

GLASS INSULATORS.

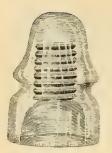


Fig. 2011.

RECULAR PATTERN.

Per 1000, \$56.00. Packed 250 in a bbl.



Fig. 2014.

PONY.

Per 1000, \$34.00.

Packed 300 to

350 in a bbl.



Fig. 2017.

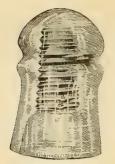


Fig. 2012.

WESTERN UNION PATTERN.

Per 1000, \$72.00.

Packed 200

in a bbl.

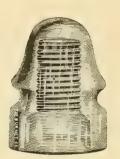


Fig. 2015.

DEEP GROOVE.

Per 1000, \$61.00.

Packed 200
in a bbl.



Fig. 2013.

WESTERN UNION DOUBLE PETTICOAT.

Per 1000, \$78.00.

Packed 165

in a bbl.



Fig. 2016.

DEEP GROOVE DOUBLE PETTICOAT.

Per 1000, \$68.00. Packed 175 in a bbl.

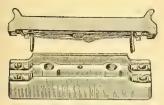
EXTRA DEEP GROOVE

DOUBLE PETTICOAT, CABLE PATTERN.

'Packed 165 in a barrel.

W. B. C. FUSE PROTECTORS.

CUARDIAN PATTERN.



Made in Single and Double Pole.

Single Pole, cor	nplete	with	Tuse,		0	Each,	\$0.50
Double "	6.6	4.6	Fuses,	٠		4.6	1.00
Renewal Fuses,						6.6	.06

Fig. 2018.

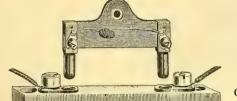


Fig. 2019.

SIMPLEX PATTERN.

3 inch Porcelain Base, 11 inch Fuse.

Complete with Fus	se,		Each	\$0.25
Renewal Fuses,			6.4	.06



MUNICIPAL PIN PATTERN.

Separable Fuse Holder.

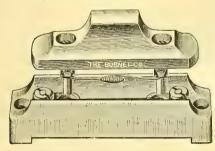
4 inch Porcelain Base, 11 inch Fuse.

Complete with Fu	se,	٠		Each,	\$0.50
Renewal Fuses,				6.6	.06

Fig. 2020.

Note 1—Simplex or Municipal W. B. G. Protectors can be mounted side by side to accommodate as many wires as may be required. One for each wire.

NOTE 2-Mica partitions $4x1\frac{1}{2}$ inches to locate between the Protectors will be supplied when wanted, at 3 cents each.



SINGLE POLE COVERED PIN PATTERN.

Porcelain Base and Cover, Base 4x1 inches.

The Fuse is entirely concealed when in position. In ordering Fuse Protectors specify amperage of Fuse required—usual amperage is .4 or .8 of an ampere.

Fig. 2021.

W. B. C. RENEWAL FUSE.



Fig. 2022.

Made in various capacities ranging from $\frac{2}{16}$ an ampere upward. Regular stock lengths are $\frac{3}{4}$, $1\frac{1}{4}$, $1\frac{1}{2}$, 3 and 6 inches. In ordering specify the length and amperage of Fuse, and give figure number of Protector they are to be used for. All the above are patented. Patent No. 611,243 F. P. & Co.

ARGUS LIGHTNING ARRESTER

TYPE B.)



Fig. 2023.

Dimensions, 7 inches long, \(\frac{3}{4}\) inches wide, 1 inch high.

Has a fuse wire at one end, which protects wires and cables from crosses with high tension currents.

Price, each
Price, mounted in weather-proof cable box, each
\(\frac{3}{4}\) inches wide, 1 inch high
tension currents.

\$0.90

PONY RELAY.

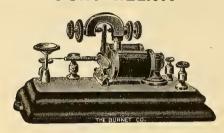


Fig. 2024.

MAIN LINE BOX RELAY.

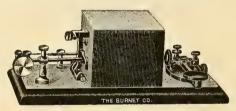


Fig. 2025.

MAIN LINE RELAY.

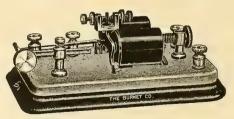
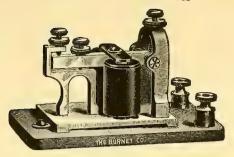


Fig. 2026.

GIANT SOUNDER.



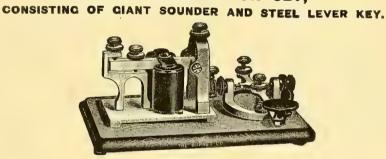


Fig. 2028.

STEEL LEVER LEG KEY.

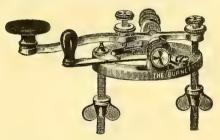


Fig. 2029.

Price, Fig. 2029, Steel Lever Key
Victor Key, Brass, \$2.30; Nickel-Plated
2.50

STEEL LEVER LEGLESS KEY.



Fig. 2030.

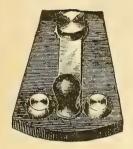
SWITCHES.



HOLLOW BASE SWITCH.

Price,	with	ı 1	Point				\$0.30
4.6	66	2	Points		• *		.35
4.4	"	3	6.6				40

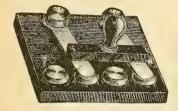
Fig. 2031.



HARD RUBBER BASE SWITCH.

Price,	with	1	Point				\$1.00
46	4.6	2	Points				1.20
							1.40

Fig. 2032.



POLE CHANGING SWITCH.

COMPANT,

2

YORK.

74.00

Price, Wire Terminals	٠			\$2.00
" B. Post "		•	•	2.60

Fig. 2033.

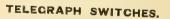




Fig. 2034.

1	Lin	e, 2 I	Perpendicu.	lar Bars				*0.00
2	66	4	"	"	•	•	•	\$3.00
3	44	6	4.6	4.6	•	•	•	6.00
4	66	8	66		•	•		10.00
5	66	10	66	66				14.00
6	66			6.6				18.00
		12	66	66				25,00
7	66	14	46	66				
8	66	16	4.6	6.6	•	•	•	30 00
10	66	20	66	66	•	•	•	38.00
12	66	24	66		•	•	•	55.00
1~		N'±	* * *	66				



CLASS BATTERY JARS.

INSIDE MEASURE.

Size, 6x8 inches, per dozen						6	\$3.60
" 5x7	£. £	6.6		c			3.00

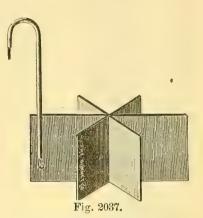
Fig. 2035.

Packed 2 doz. in a case.



Fig. 2036. COMPOSITE ZINC. CROW FOOT PATTERN.

For Jar. Weight. Each. 6x8 inches, 3 lbs. \$0.40 5x7 '' 134 '' ...25



BATTERY COPPERS.



Fig. 2038. CAMEWELL OR BALTO. F. A. ZINC.

For Jar. Weight. Each. 6x8 inches. 3 lbs. \$0.40 6x8 ... 4 " .50



Fig. 2039.

COMPOSITE ZINC LECLANCHE PATTERN.

Size . . Per 100. $\frac{3}{8}$ x6 . . . \$8.00

SULPHATE OF COPPER.

(BLUE STONE.)

CHLORIDE OF AMMONIA.

In casks, about 600 lbs.; per lb.
In smaller quantities " \$0.15

LECLANCHE POROUS CUP BATTERY.

(IMPROVED.)



Fig. 2040.

									Price.
Battery, compl	ete c	ell.	•	•		•			\$1.00
Porous Cup		•	•		•	•			.75
Glass Jar .			•	•	•	•	*		.15
Glass Cover		•		•	•	•		•	.12
Zinc, with con	aecto	r.	•				•		.08
Sal Ammoniae					•	•	•	•	.08
Battery, compl	ete c	ell, h	ermei	tically	seale	ed	•		1.50

CYLINDER CARBON BATTERY.



Fig. 2041.

	FOR	OPE	N C	IRCU	IT V	VORK	ζ.		
									Price.
Cell, complete			•					•	\$0.75
			$\mathbf{P}_{\mathbf{A}}$	RTS.					
Cylinder Carbo	on	•			.•				.40
Carbon Conne	ctor	•	•	•		•			.10
Zinc								•	.08
Jar									.15
Zinc Insulator		•							.02
Rubber Ring		•		•					.01
Sal Ammoniae									.08



Fig. 2042.

THE

BURNET DRY BATTERY,

FOR

ANNUNCIATORS, BURGLAR ALARMS, CALL BELLS,
DOOR OPENERS, TELEPHONES,

And all open circuit work in general.

Size 6 inches high, 2½ inches diameter.

Price each, \$0.40.

SPLICING CLAMPS.



Fig. 2043.

Fig. 2043. 7 inches, Copper Wire, Nos. 9 to 16 both, inclusive, price, each \$2.20



Fig. 2044.

Fig. 2044. For McIntire Joints, Nos. 10, 12 and 14, B. and S., price, each \$2.20



Fig. 2045.

Fig. 2045. For Railroad work, Nos. 0, 2 and 4 Wires, price, each . . \$2.50



Fig. 2046.

COPPER JAWS.

Fig. 2046. For hard drawn Copper Wires, No. 8 and smaller, price, each . \$3.50 SAFETY PLIERS.

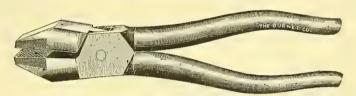


Fig. 2047.

WITH MICA INSULATED HANDLES.

 Size, inches
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 6
 8

 Price, each
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WITH RUBBER INSULATED HANDLES.

INSULATED HEAVY WIRE CLIPPER. OPENS TO 8-4 INCH.

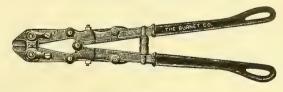
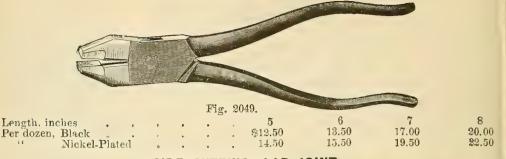
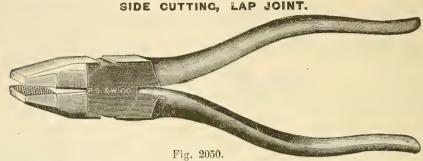


Fig. 2048.

PLIERS. SIDE CUTTING, BOX JOINT.





These high-grade Pliers are forged from crucible steel, are well made and equal in every respect to any in the world, except the Box-Joint Plier-, Fig. 2049, illustrated above. Leogth, inches . 13.50 17.00 20,00 \$12.50 Per dozen, Black

SIDE CUTTING, BOX JOINT, WITH SPLICING ATTACHMENT.

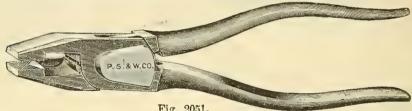
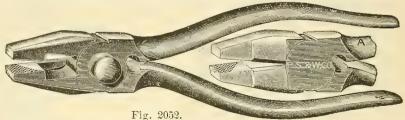


Fig. 2051.

These Pliers are especially designed for the use of Linemen and Wire Workers for splicing and connecting wires. They make a perfect and secure connection, absolutely fast and positive. Length inches 6 Per dozen, Black . \$18.00 22.0025.00

SIDE CUTTING, LAP JOINT, WITH SPLICING



These are for same purpose as Fig. 2051, but sold for a little less in price. "A" is a detail showing the side cutting-in above pliers. Length, inches Per dozen, Black . \$18.00 22.00 25.00

PLIERS.

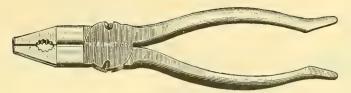
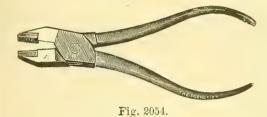


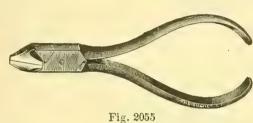
Fig. 2053.

TELEGRAPH OR SIDE CUTTING.



Leng	th.		Stubs'.	G	erman.
4 in	ches,	Per doz.	\$10.00	Per doz.	\$6.70
41	44	6.6	10.00	6.6	6.70
$rac{4}{5}$	4.6	6.6	10.00	6.6	6.70
5 1	46	6.6	10.00	4.6	7.40
$\frac{5\frac{1}{2}}{6}$	4.6	4.4	11.00	6.6	8.40
$6\frac{1}{3}$	44	4 +	14.00	4.4	9.40
$rac{6rac{1}{2}}{7}$	6.6	6.6	18,00	6.6	10.60
8	4.6	4.6	24.00	4.6	14.00
g	4.6	4.4	30.00		

DIACONAL SIDE CUTTING.



Leng	th.		Stubs'.	Gi	erman.
3 inc	ches,	Per doz.	\$10.50	Per doz.	\$6.90
$\frac{3\frac{1}{2}}{4}$	b 6	66	10-50	+ 6	6.90
4	6 6	6.4	10 50	6.6	6.90
$\frac{4\frac{1}{2}}{5}$	6.6		10.50	4.6	6.90
5		4.6	10.50	4.4	6.90
$\frac{5\frac{1}{2}}{6}$	6.6	6.4	11.50	6.6	7.80
6	4 6	6.4	14.00	6.6	8.80
$\frac{6\frac{1}{2}}{7}$	6 6	6.6		6.6	10.00
7	6.6	6.6		4.6	11.50
8	6.6	4.6		6.	15.00

END CUTTING.

Length.

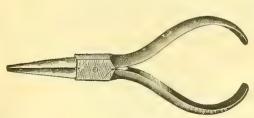


3 in	ches,	Per doz.	\$10.50	Per doz.	\$6.50
3 ½	4.6	(6	10.50	4.6	6.50
4	6.6	6+	10.50	4.6	6.50
$4\frac{1}{5}$	6.6	6.0	10.50	6.6	6.50
$rac{4rac{1}{2}}{5}$	6.6	4.4	10.50	6.6	6.50
$5\frac{1}{5}$	4.4	4.6	11.50	4.6	7.20
$\frac{5\frac{1}{2}}{6}$	4.6	6.6	14.00	4.4	8.20
$6\frac{1}{3}$	64	• 6	16.50	4.6	10.00
$rac{6rac{1}{2}}{7}$	6.6	6.6	19.00	1.6	11.50
8	6.6	66	25.00	6.6	14.00

Stubs'.

German.

ROUND LONG AND ROUND SHORT NOSE.



Len	gth.		Stubs'.	G	erman.
3 ir	ches,	Per doz.	\$5.50	Per doz.	\$3.60
$3\frac{1}{3}$	66	6.4	5.50	64	3.60
$\frac{3\frac{1}{2}}{4}$	64	4.6	5.50	66	3.60
	6.6	6.6	5.50	4.4	3.60
$\frac{4\frac{1}{2}}{5}$	6.6	4.4	6.00	4.4	4.00
	4.4	4.4	7.00	**	4.75
$\frac{5\frac{1}{2}}{6}$	4.4	66	9.00	5.5	5.40
	66	1.6	12.00	* *	6.40
$\frac{6\frac{1}{2}}{7}$	6.6	4.6	14.00	6+	7.50
8	6.6	6.6	20.00	"	10.00
	771	. 37 DI	F 4 T	47 to T to 4	

Fig. 2057.

Flat Nose Pliers take this List.

TELECRAPH OR LINEMEN'S TOOLS.



THE AMERICAN CRIP.

(Patented August, 1897.)

Has no teeth. Will not slip.

For No. 6 B. & S. and smaller . . . Price, \$4 00



ECCNETRIC WIRE GLAMPS.

Brass,	\mathbf{for}	No. 8	Wire	and	finer		Each,	\$3.00
Steel,	6.6	66	66	66	66		66	1.60
Steel.	66	No. 0	66	64	66		6.6	2.50

Fig. 2059.



COPPER-FACED, WITH LOOP.

Fig. 2060.

HAND VISES (STUBS', WITHOUT LOOP.

Size, inches			3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Each .	4	۵	\$1.00	1.10	1.20	1.40	1.70	2.00	2.85

LINEMEN'S VISES, WITH STRAP.

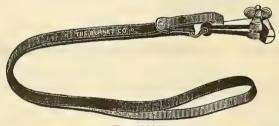


Fig. 2061.

Size, inches .			•			$5\frac{1}{2}$	6
Steel faced .					Each,	\$3.50	4.00
Copper-faced					. 66 .	4.30	4.80



Fig. 2062.

LEATHER TOOL BAG.

With Shoulder Straps and Separate Outside

Pocket for Saws.

Price each, \$7.00.

CANVAS TOOL BAG.

Price each, \$3 50.

TELECRAPH OR LINEMEN'S TOOLS. CLIMBERS (HAND MADE).



Fig. 2363. WESTERN. GOOSE-NECK PATTERN.

Without Straps, \$3.20 4.75 With Straps, per set, 1.50



Fig. 2064. EASTERN.

REGULAR PATTERN.

PRICE PER PAIR.

Without Straps, \$3 60 5.10 With Straps, per set, 1.60



Fig. 2065. DONNELY'S. SPECIAL HAND-MADE.

Without Straps, \$4.00 With 5.50 Straps, per set, 1.50

LINING OR CROWBARS.

Fig. 2066.

Length, 5½ feet; weight, about 26 lbs.; per lb \$0.12

COMBINED CROW AND DICGING BARS.

Fig. 2067.

Size, 1 inch, Octagon or Round Steel; weight, about 18 lbs.; per lb. 86 12 11 " 25 " .12



\$2.60

COMBINED TAMPING AND DIGGING BARS.

Fig. 2068.

Size, 1 inch, Octagon or Round Steel; weight, about 20 lbs.; per lb. \$0.16 " 1景" .16

ARMORED TAMPING BAR.



Wood Body, Iron Face; price, each . . . POST HOLE DIGGERS.



Fig. 2070.

\$5.00 Opens and closes, price, each .

TELEGRAPH OR LINEMEN'S TOOLS.

PLAIN PIKE POLES.

4									THE SUPPLET C	0	
					Fig. 20	71.					
Length, feet Each	٠.			•	10	12	14	16	18	20	22
Each		•			\$1.90	2.00	2.20	2.40	2.80	3.20	3.60

CUARDED PIKE POLES.



Fig.	2072.	

Length, feet										
Each	•	•	•	•	\$2.80	3.00	3.20	3.40	3.60	3.80

GUARDED PIKES WITHOUT POLES.

Each								\$0.75

CROTCH PATTERN PIKE POLES.



Fig. 2073.

Lengt	h,	feet		•		10	12	14	16	18	20
Each						\$2.80	3.00	3.20	3.40	3.60	3.80

HEAVY "DEAD MAN" PIKE POLES WITH CUARD.



Fig. 2074.

Length,	feet					5	6	8	10
Each		•				\$2.80	3.15	3.50	4.20

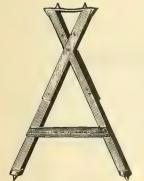


Fig. 2075.

DOUBLE POLE SUPPORT.

Price each, \$8.50.

SWIVEL CRIP POLE TONGS.

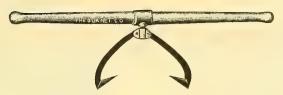


Fig. 2076.

Heavy weight, opening 21 inches, suitable for two or four men, price, each \$6.00

FOR CANT HOOKS, SEE PAGE 463.

WAGON PAY-OUT WIRE REELS.



Fig. 2077.

\$12.00 Price, each



Fig. 2078.

Price, each					\$12 00
Straps for Barrow Pay-out Reels, each	4				1.75

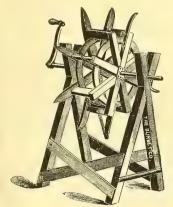


Fig. 2079.

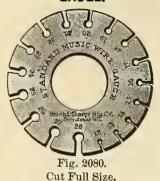
TAKE-UP WIRE REELS.

\$15.00 Price, each .

WIRE AND DRILL CAUCES.

STEEL MUSIC WIRE





Price



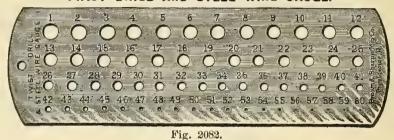
Fig. 2081.

Cut Full Size.

Gauge numbers from 61 to 80.

Price . . \$2.00

TWIST DRILL AND STEEL WIRE CAUGE.



Cut three-quarters size.

Gauge numbers from 1 to 60. Price

\$1.50

\$1.50

ENCLISH STANDARD WIRE CAUCE.
The same as Stubs' Wire or Birmingham Gauge.

AMERICAN STANDARD WIRE GAUGE.
Adopted by the Brass Manufacturers, January, 1858.

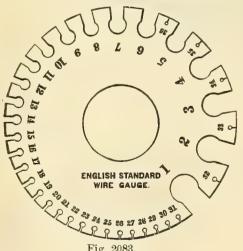


Fig. 2083.
Cut Full Size.
Sizes, 1 to 36
" 6 to 36

STANDARD

STANDARD

STANDARD

STANDARD

STANDARD

STANDARD

WIRE GAUGE

STANDARD

WIRE GAUGE

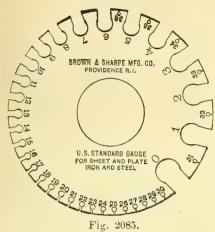
STANDARD

ST

Fig. 2084. Cut Full Size.

Fig. 2084A has the decimal equivalents, expressed in thousandths, stamped on the back, opposite to the regular gauge numbers.

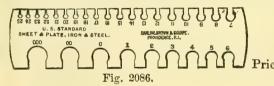
CAUCES FOR IRON AND STEEL SHEETS.



U. S. STANDARD CAUCE.

This Gauge is 3½ inches in diameter and about ½ inch thick. The Gauge numbers run from 0 to 36, and are those of the U.S. Standard Gauge, for Sheet and Plate Iron and Steel; adopted by Congress March 3, 1893.

U. S. STANDARD CAUGE FOR SHEET AND PLATE IRON AND STEEL.

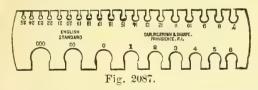


Cut is about \(\frac{1}{3} \) size.

Sizes 000 to 25.

. \$2.50

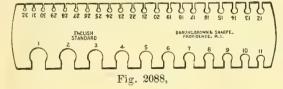
ENGLISH OR BIRMINGHAM CAUCES.



For Sheet and Plate Iron and Steel.

Cut is about \(\frac{1}{3} \) size.

Sizes 000 to 25 . . . \$2.50



Cut about 1 size.

Sizes 1 to 32 . . . \$3.00

POCKET SCREW AND WIRE GAUGE.

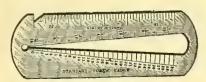


Fig. 2089. FRONT SIDE. DATA TRUMP TO PROPERTY AND THE PROPERTY

Fig. 2089. BACK SIDE.

"KEYSTONE" CONNECTING CHAIN LINKS.

DROP FORCED FROM OPEN HEARTH STEEL.

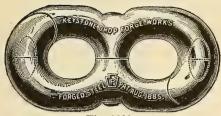
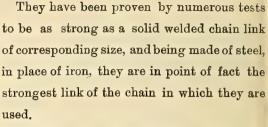


Fig. 2090. CLOSED.



They can be applied in a moment without the use of any tool, to shorten, lengthen, repair, or make chains, or as a substitute for shackles, "sister-hooks," snap-hooks, or in any situation where loose metallic connections are required. They cannot by any possibility work loose, open, or drop out while in use.

They are largely used by steam and electric railroads, engineers, miners, lumbermen, shippers, etc., and for hoists, cranes, elevators, conveyers, fire engines—in fact their serviceable field is only limited by the use of chains, where their immense saving of time and labor is instantly recognizable.

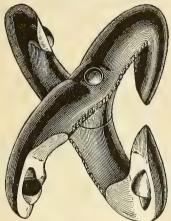


Fig. 2090. Open.

A FEW "POINTERS."

Railroads by carrying the Keystone Link in their car repair kits can permanently mend a broken brake-chain in a moment and thus avoid the delay caused by sending a car to the repair shops. The Link is used by the United States Government in its artillery, naval and wagon train service, and by various municipalities in connection with their fire and police patrol systems, and it will be found of special value to the teamster. In logging, where brake and trace chains are so constantly requiring the repairs that are inaccessible, the "Keystone Link" has proved to be invaluable.

PRICE LIST.

Size, inches . . . $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ 1 Price per dozen . . . \$2 00 2.25 2.50 3.25 4.00 7.50 10.00 15.00 Subject to Discount.

Sizes up to $\frac{1}{2}$ inch packed one dozen in a box, or shipped in bulk if desired. The sizes given in list are diameters, same as for regular chain.

As everyone knows, "a chain is as only as strong as its weakest link." You would not buy a malleable or east iron chain—why then repair a wrought chain with a cast link, thereby definitely fixing its point of failure?

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